The PHOTOFACT Servicer

SET 448 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JULY 1959

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This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

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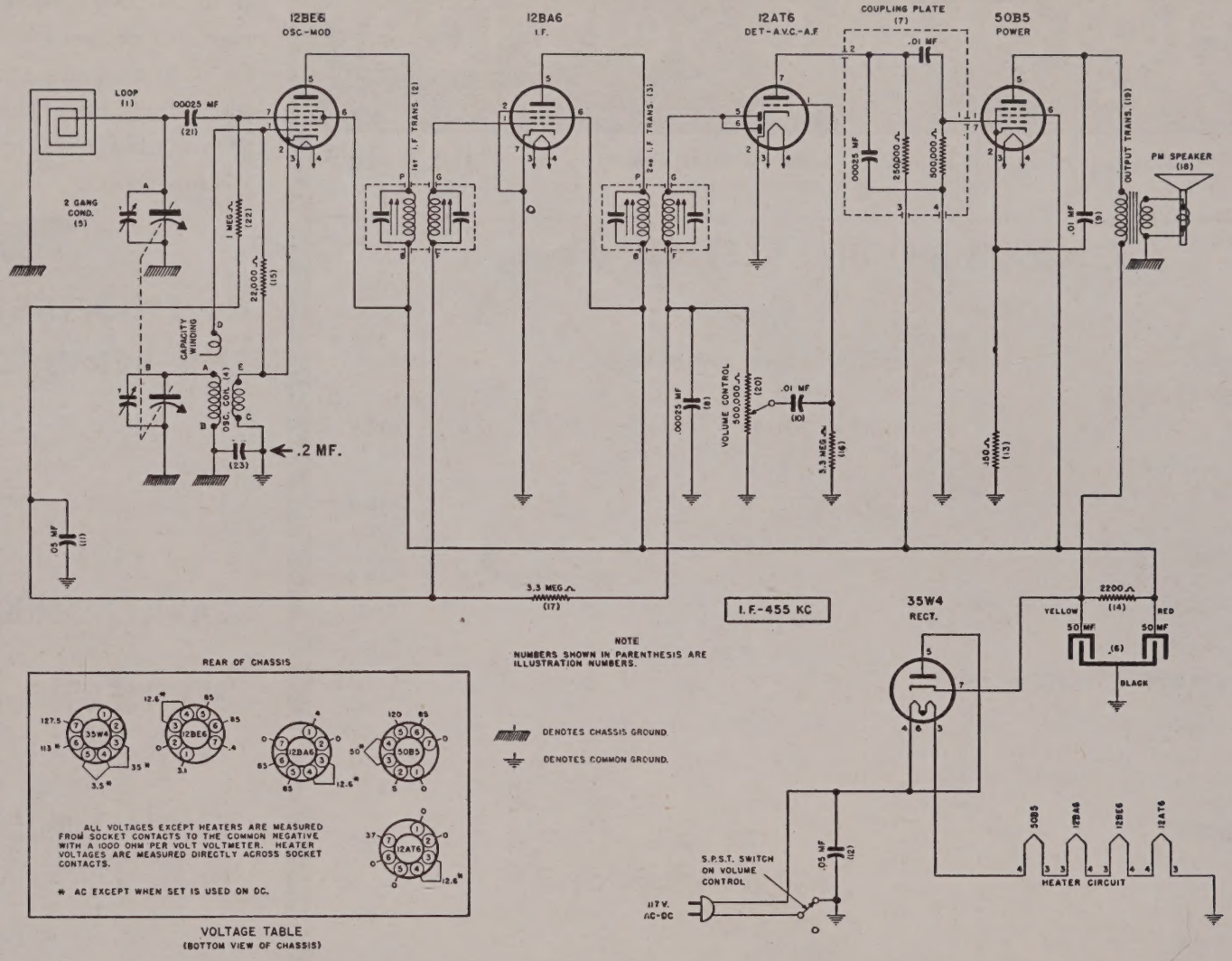
SENTINEL MODELS 1U329-1, R, W, 329-1, R, W

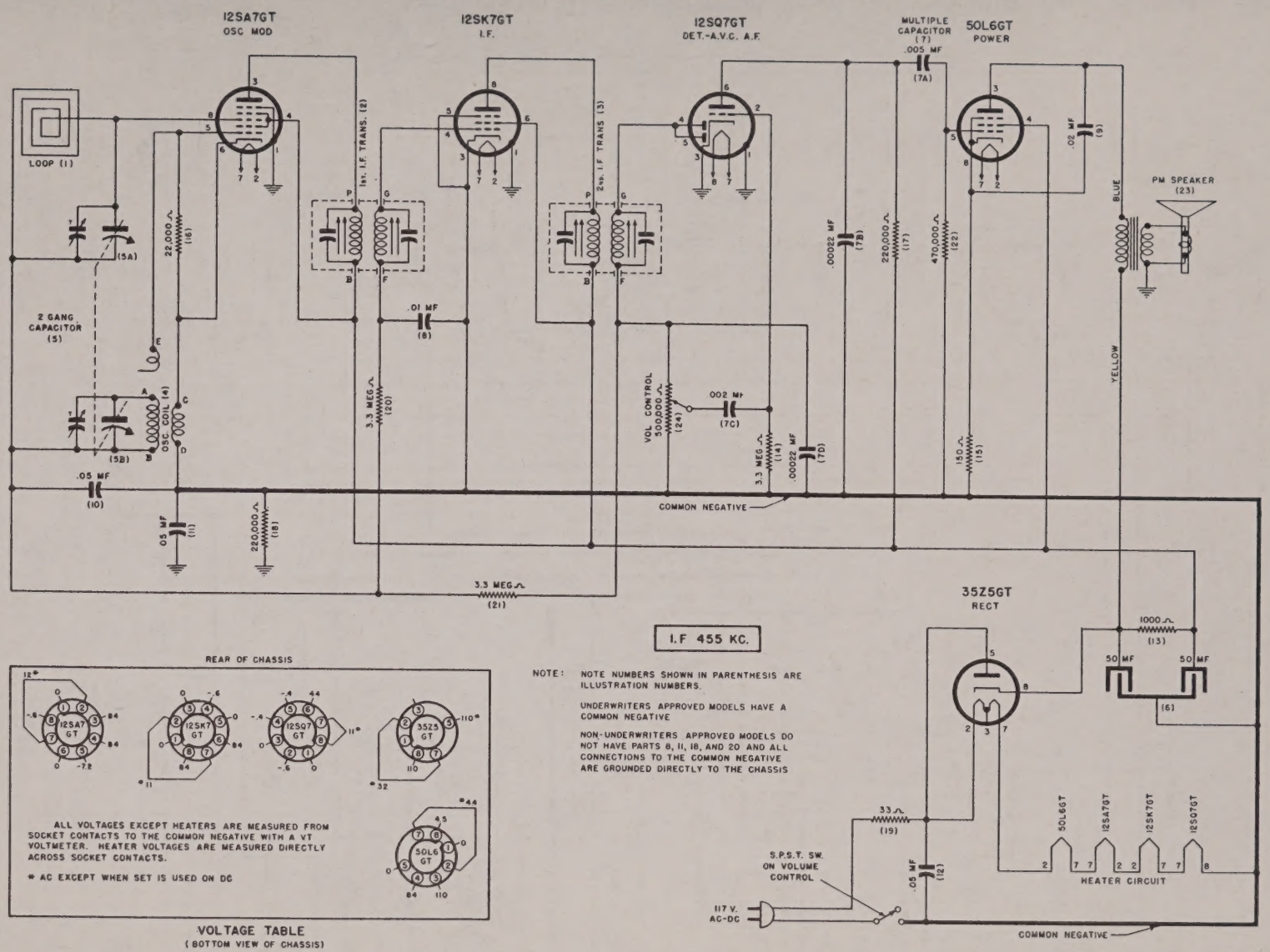
SENTINEL MODELS 1U330-1, R, W, 330-1, R, W



VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

SENTINEL MODELS 1U329-I, R, W, 329-I, R, W

Schematic Diagram Courtesy of Sentinel Radio Co.



VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

NOTE: NOTE NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.

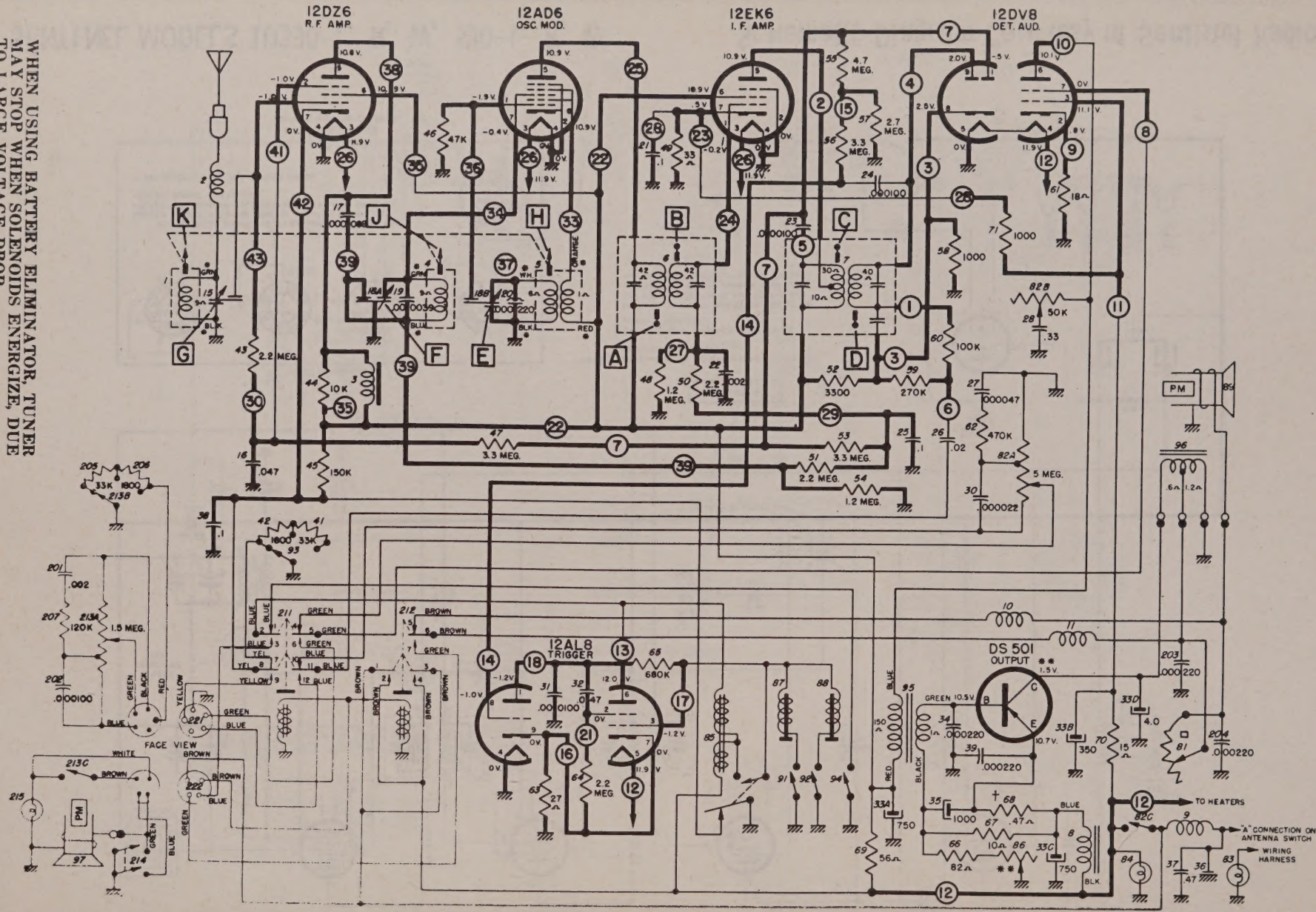
UNDERWRITERS APPROVED MODELS HAVE A COMMON NEGATIVE

NON-UNDERWRITERS APPROVED MODELS DO NOT HAVE PARTS 8, 11, 18, AND 20 AND ALL CONNECTIONS TO THE COMMON NEGATIVE ARE GROUNDED DIRECTLY TO THE CHASSIS

SENTINEL MODELS 1U330-1, R, W, 330-1, R, W

Schematic Diagram Courtesy of Sentinel Radio Co.

WHEN USING BATTERY ELIMINATOR, TUNER MAY STOP WHEN SOLENOIDS ENERGIZE, DUE TO LARGE VOLTAGE DROP.



CADILLAC MODEL 7272525

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

PHOTOFACT* Folder

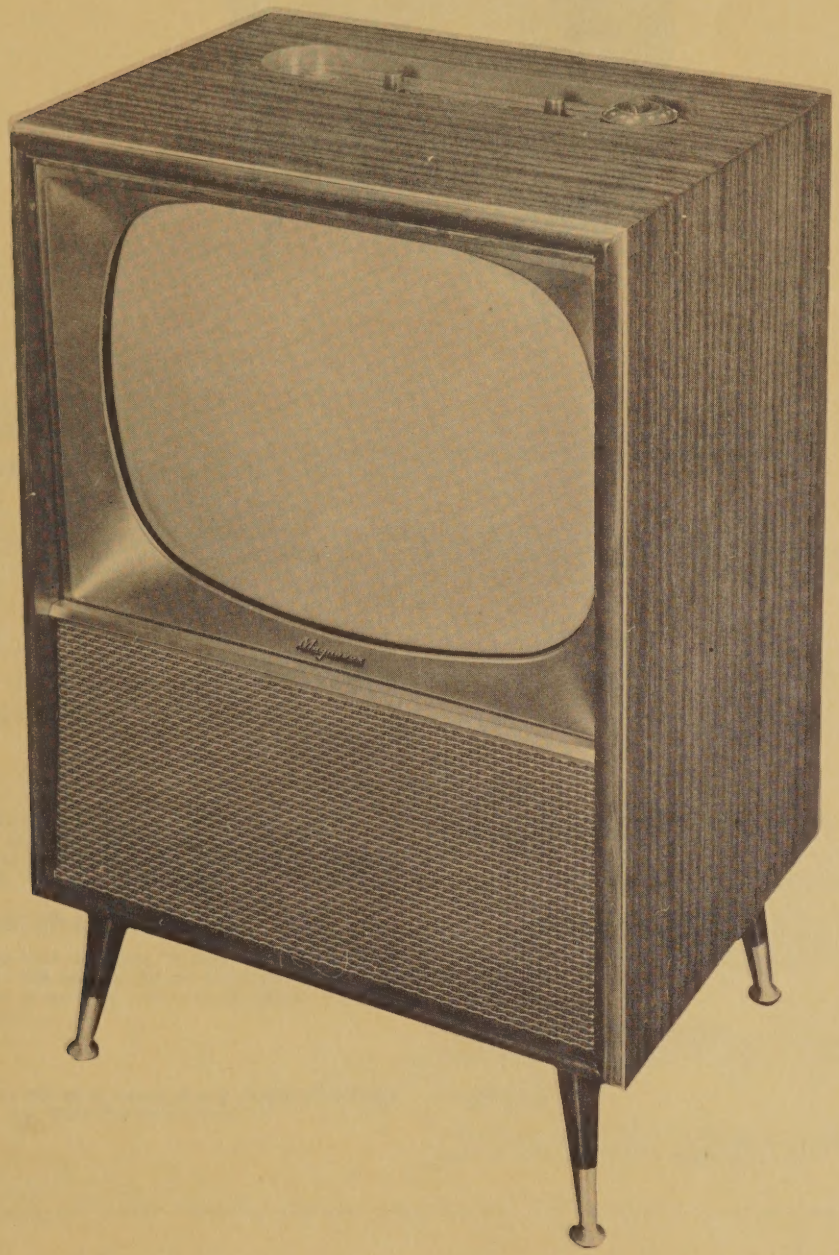
MAGNAVOX CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)

MAGNAVOX CHASSIS U28-0100 thru U28-0600,
V28-0100 thru V28-0600 (28 Series)

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MAGNAVOX CHASSIS U28-0100 thru U28-0600,
V28-0100 thru V28-0600 (28 Series)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 448 FOLDER 1

PHOTOFACT* Folder

MAGNAVOX CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)

MAGNAVOX CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)

TRADE NAME	Magnavox	CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Ft. Wayne 4, Indiana	
TYPE SET	Television Receiver	
TUBES	VHF-Seventeen, UHF-Eighteen	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 170 Watts, 1.6 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

FUSE

One fuse is used for horizontal sweep circuit protection. (For location, see "Tube Placement Chart".)
One fuse wire is used for filament protection. (For location, see M3 in photo "Chassis Bottom View".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, it is necessary to remove the rear cover. The adjustments are accessible thru a hole in the right side of the tuner rear cover as viewed from the rear of the tuner.

AGC

The AGC may be varied by means of an L-S-D(AGC) switch. (For location, see "Tube Placement Chart".)

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency slug. (For location, see "Tube Placement Chart".)

WIDTH

In some versions the width may be varied by means of a Width coil. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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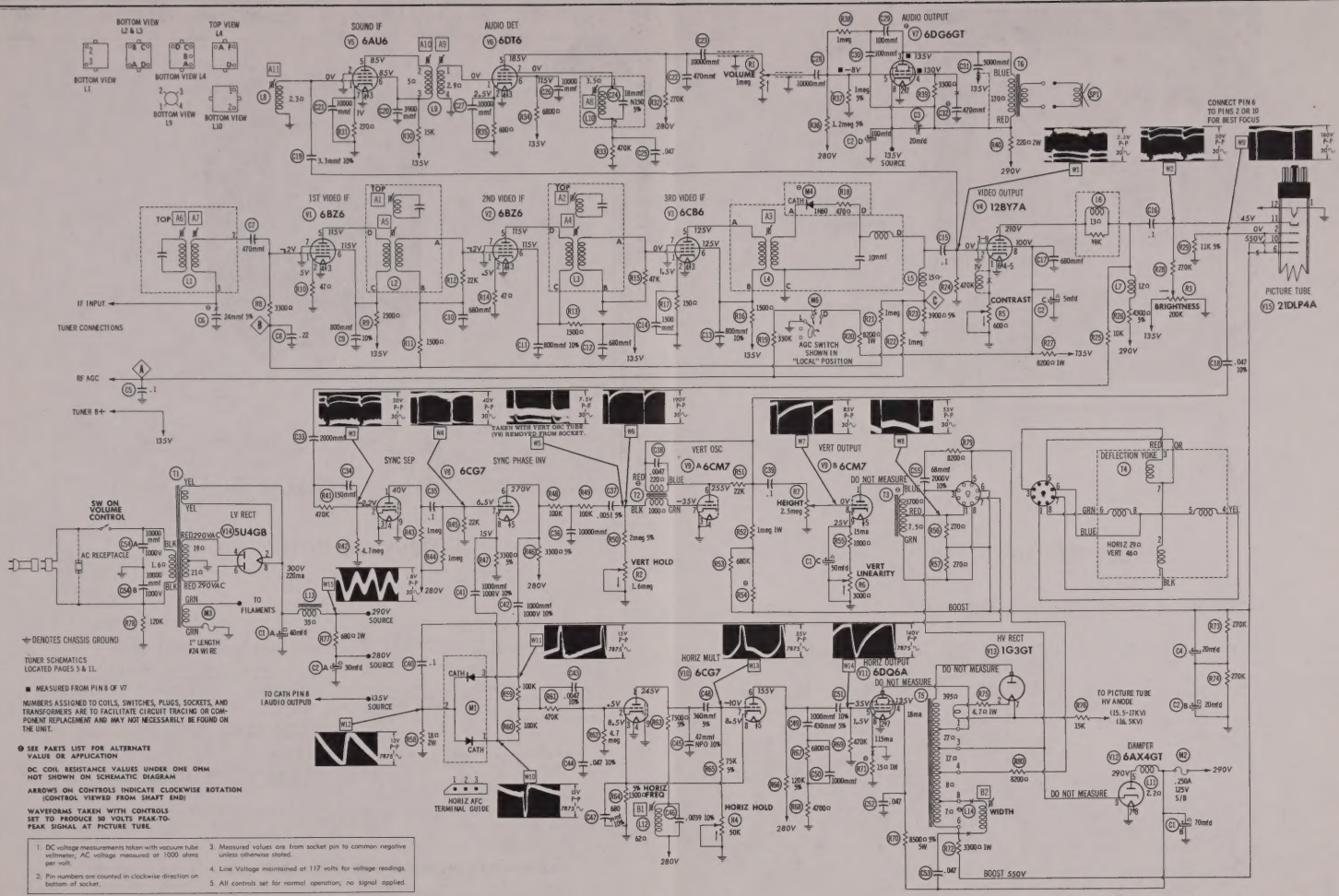
J205

SET 448 FOLDER 1


BOTTOM VIEW L2 & L3
TOP VIEW L4
BOTTOM VIEW L1
BOTTOM VIEW L4
BOTTOM VIEW L9
BOTTOM VIEW L10
SOUND IF
V5 6AU6
AUDIO DET
V6 6DT6
AUDIO OUTPUT
V7 6DG6GT
VOLUME
1meg
1ST VIDEO IF
V1 6BZ6
2ND VIDEO IF
V2 6BZ6
3RD VIDEO IF
V3 6CB6
VIDEO OUTPUT
V4 12BY7A
CONNECT PIN 6 TO PINS 2 OR 10 FOR BEST FOCUS
IF INPUT
TUNER CONNECTIONS
CONTRAST
BRIGHTNESS
PICTURE TUBE
V15 21DLP4A
AGC SWITCH SHOWN IN "LOCAL" POSITION
RF AGC
TUNER B+
SYNC SEP
SYNC PHASE INV
V8 6CG7
VERT OSC
V9 A 6CM7
VERT OUTPUT
V9 B 6CM7
DO NOT MEASURE
HEIGHT
VERT LINEARITY
VERT HOLD
BOOST
DEFLECTION YOKE
HORIZ 29Ω
VERT 46Ω
SW ON VOLUME CONTROL
AC RECEPTACLE
LV RECT
V14 5U4GB
TO FILAMENTS
1" LENGTH #24 WIRE
DENOTES CHASSIS GROUND
TUNER SCHEMATICS LOCATED PAGES 5 & 11.
■ MEASURED FROM PIN 8 OF V7
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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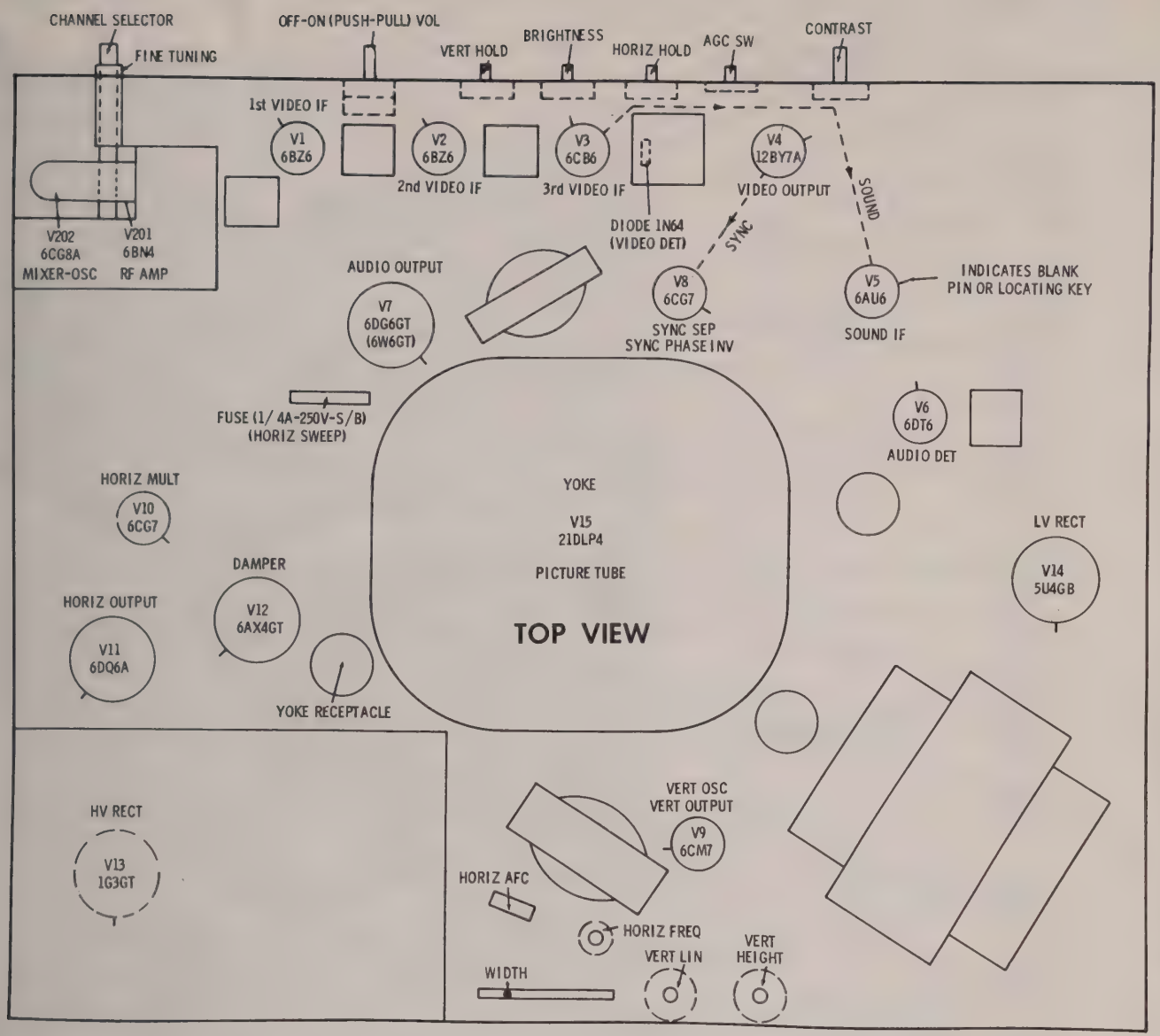
TAKEN WITH VERT OSC TUBE (V9) REMOVED FROM SOCKET.
TO CATH PIN 8 (AUDIO OUTPUT)
HORIZ AFC TERMINAL GUIDE
HORIZ MULT
V10 6CG7
HORIZ OUTPUT
V11 6DQ6A
HV RECT
V13 1G3GT
TO PICTURE TUBE HV ANODE (15.5-17KV) (16.5KV)
DAMPER
V12 6AX4GT
WIDTH
HORIZ HOLD
5% HORIZ FREQ
BOOST 550V

MAGNAVOX CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)

MAGNAVOX CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)

FOLDER 1

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse Wire (Fil.), V14

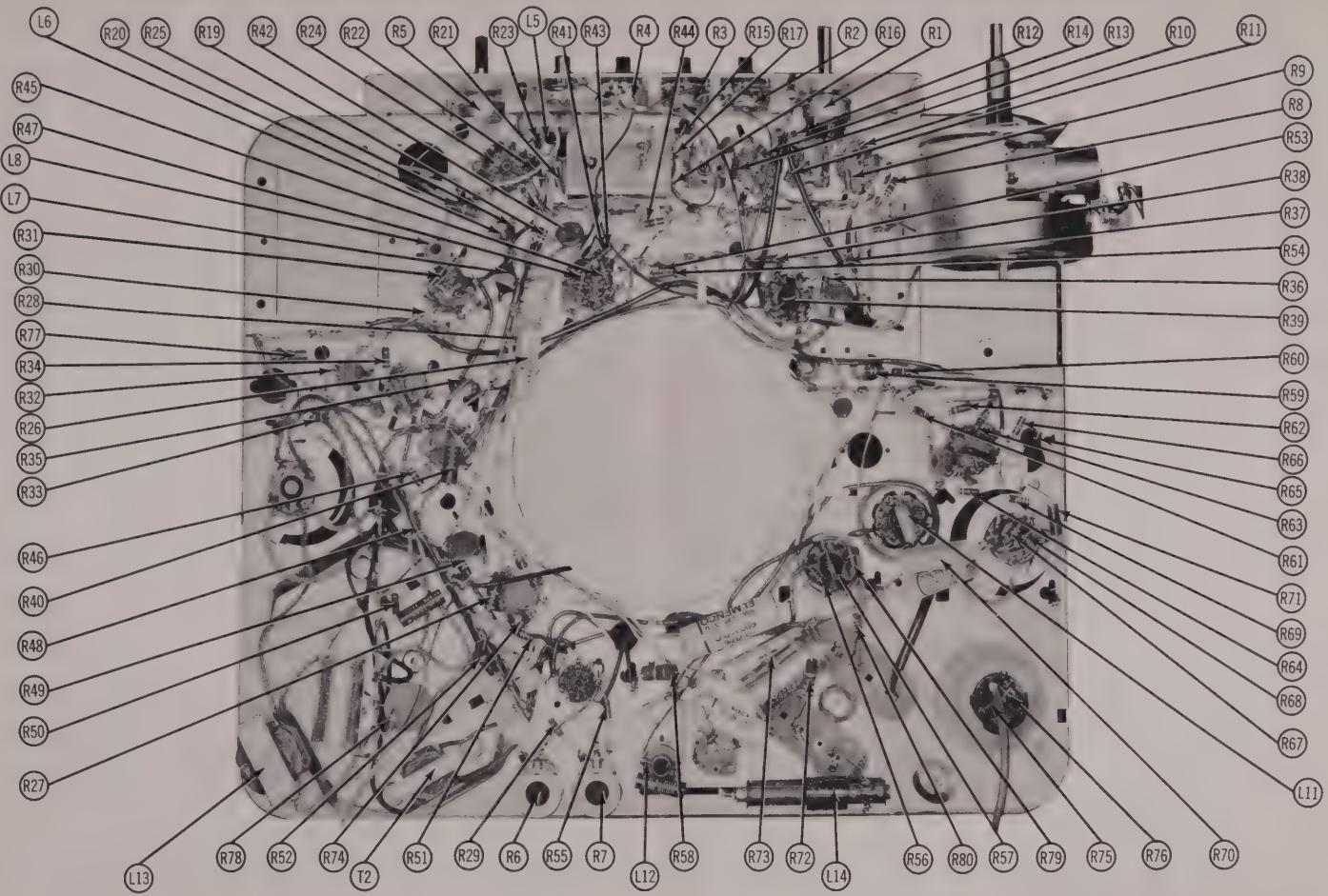
SWEEP FAILURE
No raster, has sound Fuse (1/4A), Rect. (Horiz. AFC), V10, V11, V12, V13, V15, V14
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, V14
Vert. off freq. V9
Horiz. off freq. V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V7
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V15
Has pic, no sound V5, V6, V7

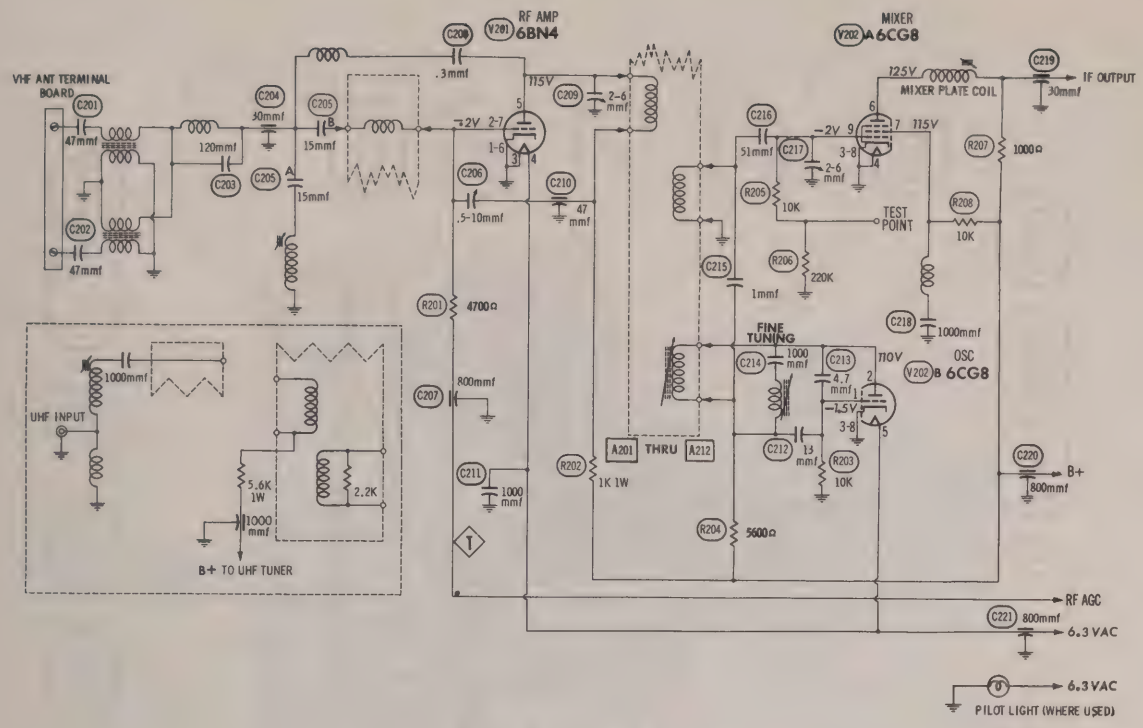
SYNC FAILURE
No vert. sync V8
No horiz. sync V8, Rect. (Horiz. AFC)
No vert. or horiz. sync V8

MAGNAVOX CHASSIS U28-0100 thru U28-0600, V28-0100 thru V28-0600 (28 Series)

FOLDER 1



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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TUNER 700731-1, 700732-1

TUNER PARTS LIST AND DESCRIPTIONS

700731-1

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

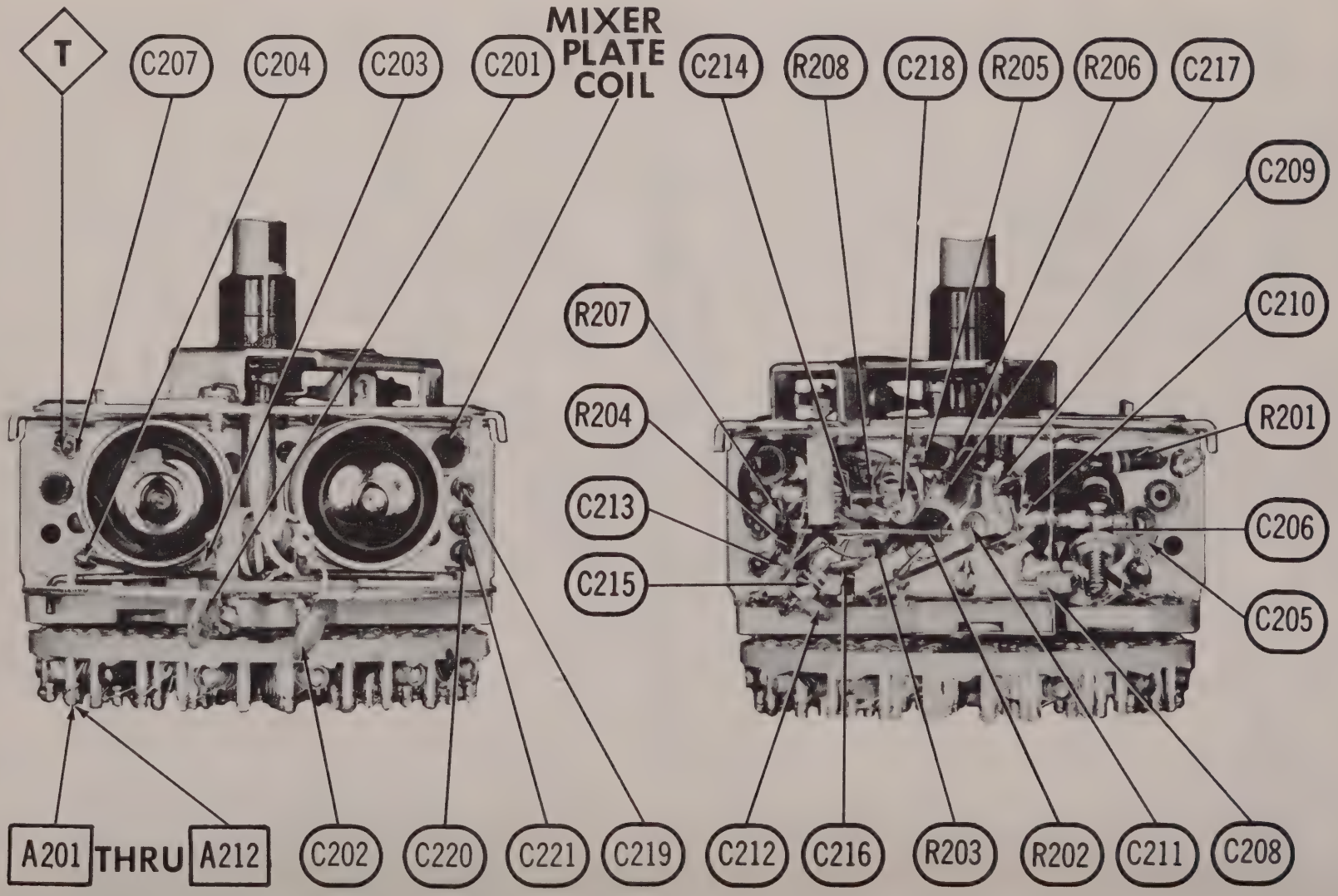
ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	47				BPD-000047	DD-470	L10Q47	CNO-447	5GA-Q47	
C202	47				BPD-000047	DD-470	L10Q47	CNO-447	5GA-Q47	
C203	120		10%		DI-120	DD-121	L10T12	CNO-312	5GA-T12S 10% *	
C204	30									
C205A	15				BPD-000015	DD-150	L10Q15	CNO-415	5GA-Q15	
B	15				BPD-000015	DD-150	L10Q15	CNO-415	5GA-Q15	
C206	.5-10					829-10				
C207	800				EF-001	MFT-1000			503C-D1	
C208	.3									
C209	2-6					829-6		CT552		
C210	47				EF-00005	MFT-50				
C211	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C212	13		N220 5%							
C213	4.7		N220 ± .25mmf							
C214	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C215	1.0				NPO-SI 1	TCZ-1		CNO-510	5TCCB-V1	
C216	51		N750 10%		N750-SI 51	TCN-51	C10Q51U			
C217	2-6					829-6		CT552		
C218	30									
C219	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C220	30									
C221	800				EF-001	MFT-1000			503C-D1	
C222	800				EF-001	MFT-1000			503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω	1		
R203	10K			
R204	5600Ω			

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R205	10K			
R206	220K			
R207	1000Ω			



TUNER 700731-1

CHASSIS TOP VIEW

MAGNAVOX CHASSIS U28-0100 thru U28-0600,
V28-0100 thru V28-0600 (28 Series)

FOLDER 1

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	6BJ6	
V2	2nd Video IF Amp.	6BJ6	
V3	3rd Video IF Amp.	6CB6	
V4	Video Output	12BY7A	
V5	Sound IF Amp.	6AU6	
V6	Audio Det	6DT6	
V7	Audio Output	(6)CG7T 6W6GT*	

ITEM No	USE	TYPE	NOTES
V8	Sync Sep -Sync Phase Inv	6CG7	
V9	Vert. Osc.-Vert. Output	6CM7	
V10	Horiz. Multi	6CG7	
V11	Horiz. Output	6DQ6A	
V12	Damper	6AX4GT	
V13	HV Rect	(G)GT	
V14	LV Rect	5U4GB	

* Alternate

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	MAGNAVOX PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.
V15	21DLP4			21DLP4 ①

① "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA					
	CAP	VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.
C1A	440	350	27002I-82	AFH3-154-30	C3104	FP368 5	TMQ-181 ❖	TVL-3756
B	45	350						
C	450	50						
C2A	430	350	27002I-84	AFH4-56-80	D0418	FP430.33	TMQ-182	TVL-4634 ❖
B	420	350		5				
C	45	350						
D	100	200						
C3	20	350	27002I-30	PRS450V20	BR3035	TC85	TD-20-350	TVA-1608
C4	20	350	27002I-20	PRS450V20	BR3035	TC85	TD-20-350	TVA-1608

❖ Disregard 10mfd @ 350V section.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING			REPLACEMENT DATA					
	CAP	VOLT	TOL	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	.1	200		250202-13	P288N-1	DF-104	CUB3P1	GEM-201	2TM-P1
C6	24		5%	250224-315	1469-000024	DTZ-24	ZJR5G24		5GA-G24S 5% *
C7	470		5%	250128-8	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47
C8	22	200		250202-15	P288N-22		CUB2P22	GEM-2022	2TM-P22
C9	600		10%	250218-14				JL-382	5GA-T6S 10% *
C10	680			250218-10	BPD-00068	DD-681	BYA10T68	B-368	5GA-T68
C11	600		10%	250218-14				JL-382	5GA-T6S 10% *
C12	680			250218-10	BPD-00068	DD-681	BYA10T68	B-368	5GA-T68
C13	600		10%	250218-14				JL-382	5GA-T6S 10% *
C14	1500			250218-16	BPD-00015	DD-152	BYA10G15	B-315	5HK-G15
C15	1	200		250185-16	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1
C16	1	200		250202-13	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1
C17	680			250218-10	BPD-00068	DD-681	BYA10T68	B-368	5GA-T68
C18	.047	400	10%	252212-7	V84C4847		FM4S47	GTM-4147	4TM-S47
C19	.2		10%	250125-121	WPO-S2.2	TCZ-3R3	Z10Y3C	GT-5533	5TCCB-V33S 10%
C20	3900			250175-31	BPD-0039	DD-392	L0D1I9	B-239	5HK-D39
C21	1000			250175-2	BPD-01	DD-103	BYA10I	B-110	5HK-S
C22	470			250218-5	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47
C23	10000			250175-2	BPD-01	DD-103	BYA10G	B-110	5HK-S
C24	18		NPO 5%						
C25	.047	200		252212-7	P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47
C26	1000			250218-19	BPD-01	DD-103	BYA10I	B-110	5HK-S
C27	10000			250218-19	BPD-01	DD-103	BYA10I	B-110	5HK-S
C28	10000			250175-2	BPD-01	DD-103	BYA10G	B-110	5HK-S
C29	100			250218-22	BPD-0001	DD-101	L10TI	B-310	5GA-T1
C30	100			250218-22	BPD-0001	DD-101	L10TI	B-310	5GA-T1
C31	5000			250175-20	BPD-005	DD-502	BYA10D5	B-350	5HK-D5
C32	470			250218-5	BPD-00047	DD-471	BYA10T47	B-347	5GA-T47
C33	3000			250218-20	BPD-003	DD-302	BYA10D3	B-230	5HK-D3
C34	150			250229-534	1469-00015	DD-151	ZJR5T15	MC3S6	M8-315
C35	.1	400		250211-13	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1
C36	10000			250218-19	BPD-01	DD-103	BYA10S	B-110	5HK-S
C37	.0051	400	5%	250277-316					6TM-D51 5% *
C38	.0047	400		250211-5	P488N-0047	DD-472	CUB4D47	GEM-4247	4TM-D47
C39	.1	400		250211-13	P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1
C40	.1	600		250190-1	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1
C41	1000	1000	10%	250218-8					5GA-T1S 10% *
C42	1000	1000	10%	250218-5				JL-310	5GA-T1S 10% *
C43	.0047	1000	10%	250212-4	V84C4D47		FM5D47	GTM-4247	6TM-D47
C44	.047	300	10%	250212-7	V84C2347		FM2S47	GTM-2147	2TM-S47
C45	47		NPO 10%	250175-58	NPO-D1.47	DTZ-47	CUB2D47	CNO-447	5TCC-Q47S 10% *
C46	.0039	300	10%	250294-113			FM3D4	GTM-224	5BF-D39
C47	680		10%	250218-10	DI-680	DS-681		JL-368	5GA-T6S 10% *
C48	360		5%	250229-343	1469-00358		5RST36		M8-336
C49	430		5%	250229-445	1469-00043		5RST43		M8-343
C50	1000		10%	250175-85	BPD-001	DD-103	BYA10D1M	B-210	5HK-D1
C51	1000		10%	250218-8	DI-1000			JL-310	5GA-D1S 10% *
C52	.047	600			P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47
C53	.047	500		250290-2	P688N-047	DF-503	CUB6S47	GEM-5147	5TM-S47
C54A	10000	1000		250219-3	DAC-2T	DD-103	HV5I0S	2HV-U10	2UKD-S1
B	10000	1000			DAC-3T	DD-103	HV5I0S	2HV-U10	2UKD-S1
C55	56	2000	10%	250175-22			HVD2Q56	3DY-456	3GA-Q56S 10% *

① Not used in some versions.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					
	RESISTANCE	WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	220135-1				PP16A	Volume
B	Switch					Hot Reg	PTA30L	Push-Pull Off-On
R2	1.5meg	½	220146-11	BX-742	B47-1 5meg-S	QU-138	PTA30L	Vert. Hold
R3	200K	½	220146-10	BX-46	B47-200K-S	QU-129	U43	Brightness
R4	50K	½	220146-5	BX-31	B47-50K-S	QU-123	PTA54L	Horiz. Hold
R5A	600Ω	½	220126-71	B-413	A47-750-S	QI7-105	U3	Contrast
B	Shaft			Not Reg.	FS-3	Not Reg	Not Reg	
R6A	3300Ω	½	220146-8	AB-8	B47-3000-S	QU-112	PTA52L	Vert. Lin.
B	Shaft			AK-19	Not Reg.	TQ	Not Reg.	
R7	2.5meg	½	220146-2	BX-82	B47-2.5meg-S	QU-239	TA25L	Vert. Height

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R8	3300Ω		220146-68	
R9	1500Ω		220146-64	
R10	47Ω		220104-46	
R11	1500Ω		220104-64	
R12	22K		220104-78	
R13	1500Ω		220104-64	
R14	47Ω		220104-46	
R15	47K		220104-82	
R16	1500Ω		220104-64	
R17	150Ω		220104-53	
R18	470Ω			
R19	330K		220104-92	
R20	82000	1	220105-72	
R21	1meg		220104-98	
R22	1meg		220104-98	
R23	39000 5%		220104-93	
R24	470K		220104-94	
R25	10K		220104-74	
R26	43000 5%	5	240073-1	
R27	8200Ω	1	220104-73	
R28	270K		220104-9	
R29	11K 5%		220094-184	
R30	15K		220104-76	
R31	270Ω		220105-55	
R32	270K		220104-91	
R33	470K		220104-94	
R34	6800Ω		220104-72	
R35	680Ω		220104-60	
R36	1.2meg 5%		220094-233	
R37	1meg 5%		220094-231	
R38	1meg		220104-98	
R39	3300Ω		220104-68	
R40	220Ω	2	220105-54	
R41	470K		220104-94	
R42	4.7meg		220104-106	
R43	1meg		220104-98	
R44	1meg		220104-98	

ITEM No.	RATING		MAGNAVOX PART No.	NOTES
	OHMS	WATT		
R45	33K		220104-78	
R46	33000 5%		220094-171	
R47	33000 5%		220094-171	
R48	100K		220104-86	
R49	100K		220104-86	
R50	1meg 5%		220094-233	
R51	33K		220104-78	
R52	1meg	1	220105-96	
R53	680K		220104-96	
R54			220130-2	Note 1
R55	10000		220104-82	
R56	2700		220104-56	
R57	2700		220104-56	
R58	180	2	220104-45	
R59	100K		220104-86	
R60	100K		220104-86	
R61	470K		220104-94	
R62	4.7meg		220104-106	
R63	75000 5%		220094-180	
R64	12000 5%		220094-152	
R65	75K 5%		220094-204	
R66	120K 5%		220094-209	
R67	68000		220104-72	
R68	4700Ω		220104-70	
R69	470K		220104-94	
R70	82000 5%	5	240073-25	
R71	15Ω	1	220145-60	Note 2
R72	680Ω	1	220105-68	
R73	270K		220104-91	
R74	270K		220104-91	
R75	4.7Ω	1	220107-1	
R76	15K		220104-76	
R77	680Ω	1	220105-60	
R78	120K		220104-1	
R79	82000		220104-73	
R80	8200Ω		220104-73	

Note 1. Temperature compensating. Approximately 700K Cold.
Note 2. Not used in some versions.

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA					
		MAGNAVOX PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.
L1A	1st Video IF	390854-1					
B	41.25MC Trap						
L2A	2nd Video IF	390844-1	17-5003 *	17-5003 *	TV-128 *	8233 *	
B	47.25MC Trap						
L2A	3rd Video IF	390844-1	17-5003 *	17-5003 *	TV-128 *	8233 *	
B	47.25MC Trap						
L3A	4th Video IF	390843-1	17-4514	17-4514			
L4	Shunt Peaking Coil	390852-13	19-3300	19-3300	TV-303	8176	VP-8
L5	Series Peaking Coil	390852-15	19-3280 ▲	19-3280 ▲	TV-185 ▲	8181 ▲	VP-8 ▲
L7	Shunt Peaking Coil	390852-16	19-3300	19-3300	TV-198	8193	VP-8
L8	1st Sound IF	390772-1	17-3402	17-3402	TV-119 ▲	8470 ▲	SV-3
L9	2nd Sound IF	390725-1			TV-148 ▲		
L10	Quadrature Coil	390716-2	17-1031 ▲	17-1031 ▲	TV-134 ▲	8481 ▲	SC-8
L11	RF Choke	360601-6					

ITEM No.	USE	REPLACEMENT DATA					
		MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.
L12	3rd Sound IF	390716-1	17-1030 ▲	17-1030 ▲	TV-134 ▲	8481 ▲	SC-8
L13	Ratio Det	390716-3	17-1032 ▲	17-1032 ▲	TV-135 ▲	8482 ▲	SC-8

* Use adapter plate.
† Wound on 39K resistor.
▲ Parallel with 39K resistor.

◇ Disregard tap.
▲ Drill mounting holes.
▲ Enlarge mounting hole

① IRC Part #CLA.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L23	62Ω		360679-3	HS-5	TV-163	6HO	H-102	HS-5	Horiz. Freq.

FILTER CHOKE

ITEM No	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES	INDUCTANCE @ CURRENT 1000 ^A/_C	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L13	220A	35Ω	5 Hy.	330058-4						

COILS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA								
		MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L14	Width Coil (7-32MH)	360698-1 ③	WC-19 ②	MWC-12 ②	5115 ②	30IR3A ②	GRC104 ②	WC-18 ②	WC-19 ②	WLC-3 ②

① Not used in some versions.
② Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
				MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI.	SEC. 1	SEC. 2							
T1	117V ① 1.8A	370VCT ② 220A	5V ③ 3A	300L70-1		28RS1			28RS1	R-57BC ①
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ③ 8.5A									

① Use original shields.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA							
		MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc.	C3203S2-4	26A04	A-3003	V405	VBO19	A-8125	26A04	A-97X
	Alt. Vert. Osc.	230280-4							
T3	Vert. Output	230283-3	26S54 ①	A-3234 ②	V315 ②	VO31 ②	A-8141 ②	26S54 ②	A-102X ②
T4	Yoke-Horiz. (ELMAC) (90°)-Vert. (43MAH)	380780-1	Y-26 ② ③	MDF-982 ② ③	Y90Y19/43 ② ③	PCM3045 ② ③	DY-18A ② ③	26S54 ② ③	Y-16 ② ③	Y-42 ② ③ ④
	Alt. Yoke	700702-1								YC-1 ② ④
T5	Horiz. Output	360777-1	FLY-156 *						FLY-156 *	CL-1 ④ D-92 *

① Drill new mounting hole(s).
② Cut and tape blanking lead.
③ Requires new rear cover, centering device and yoke clamp.
④ Connect same as original.
⑤ Remove Horizontal and Vertical Damping Networks from yoke.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
1	8					8	8
3	5					5	5
4	3					3	3
8	2					2	4
6	1					1	1
Connect Width Coil Across	6 & 8	2 & 1				2 & 1	4 & 1
Special Notes ①							②

① Filament requires two turns.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T6	3100Ω	3-4Ω	230278-1	26S50	A-3018	AU-600	A-8123	26S50	S-16X ①	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE				REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C IMP.		MAGNAVOX PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω			8A21	

RECTIFIERS

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	CURRENT (Measured)		MAGNAVOX PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M8			530048-3 ①	KM16 ①	771 ① ②		① Selenium Type. ② Two Required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MAGNAVOX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	3.2A 125V 3/8	180157-30		315.250 (3AG-1/4A-125V-3/8)		3570Q1	MDL 1/4	6406
M3	1" Length #24 Wire								

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MAGNAVOX PART No.	CBS PART No.	SYLVANIA PART No.	
M4	1N60 *		1N60	1N60	Video Det. (Pigtail) * Some versions may use 1N64

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	
M5	Tuner	700751-1	VHF, Ch. U38-0100 thru 0600
	Tuner	700752-1	VHF with UHF prestation, Ch. U38-0100 thru 0600
	Tuner	700688-1	UHF Ch. U38-0100 thru 0600
M6	Switch	180274-1	L, S, D (AGC) Rotary Wafer Type

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8235 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Tin) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

MAGNAVOX CHASSIS U38-0100 thru U38-0600, V38-0100 thru V38-0600 (38 Series)

FOLDER 'I'

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Set AGC switch to "Local" position
Connect the negative lead of a 1.5 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 3 volt bias supply to point (B). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Detune Mixer Plate Coil by turning core fully counterclockwise.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 1st Video IF Amp. Low side to chassis.	43.5MC (10MC Swp)	47.25MC	Any non-interfering high band channel	Vert. Amp. thru 10K to point (C). Low side to chassis. (Across Video Det. load)	A1, A2	Adjust to place 47.25MC marker in trap notch. If two points are found to do this, use the one with slug farthest from chassis.
2.	"	"	"	42.25MC 45.0MC 45.75MC 47.25MC	"	"	A3, A4, A5	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Tune A3 for maximum gain, A4 to place 45.75MC marker at 50% and A5 to place 42.25MC marker at 50% on other side.
3.	Direct	Place a thin insulated metal strip between the Mixer-Osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC	"	"	A6	Adjust to place marker in trap notch. If two points are found to do this, use the one with slug farthest from chassis.
4.	"	"	"	41.25MC 42.25MC 45.0MC 45.75MC	"	"	Mixer Plate Coil & A7	Adjust Mixer Plate Coil for maximum gain with 45.75MC marker at 50%. Adjust A7 for maximum gain and proper tilt. Repeat until proper response (Fig. 1) is obtained.

SOUND IF ALIGNMENT

Turn Contrast fully clockwise and A8 fully counterclockwise.
Tune in a strong TV signal (preferably with a tone signal or music).
Adjust A8 just past the point of maximum sound and MINIMUM distortion.
Reduce the signal strength by disconnecting the antenna or connecting an adjustable attenuator between the antenna leads and the antenna terminals so that with the Volume set a maximum, the sound is at a low level.
Turn the Fine Tuning thru undistorted sound. Set the Fine Tuning to the verge of distortion.
Adjust A9, A10 and A11 for MINIMUM distortion.
Readjust the Fine Tuning during adjustments to keep it at the verge of distortion.

4.5MC TRAP ALIGNMENT

Tune in a TV station and turn the Fine Tuning slowly clockwise until a 4.5MC beat interference becomes visible in the picture. Adjust A12 until the horizontal scanning lines are smooth and continuous.

FIG.1

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point ⏀. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The Sweep Generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough Sweep Generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Set the Fine Tuning to the center of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A202	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A203	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A204	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A205	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A206	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A207	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A208	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A209	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A210	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A211	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A212	

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER

This protion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

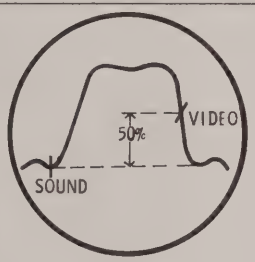
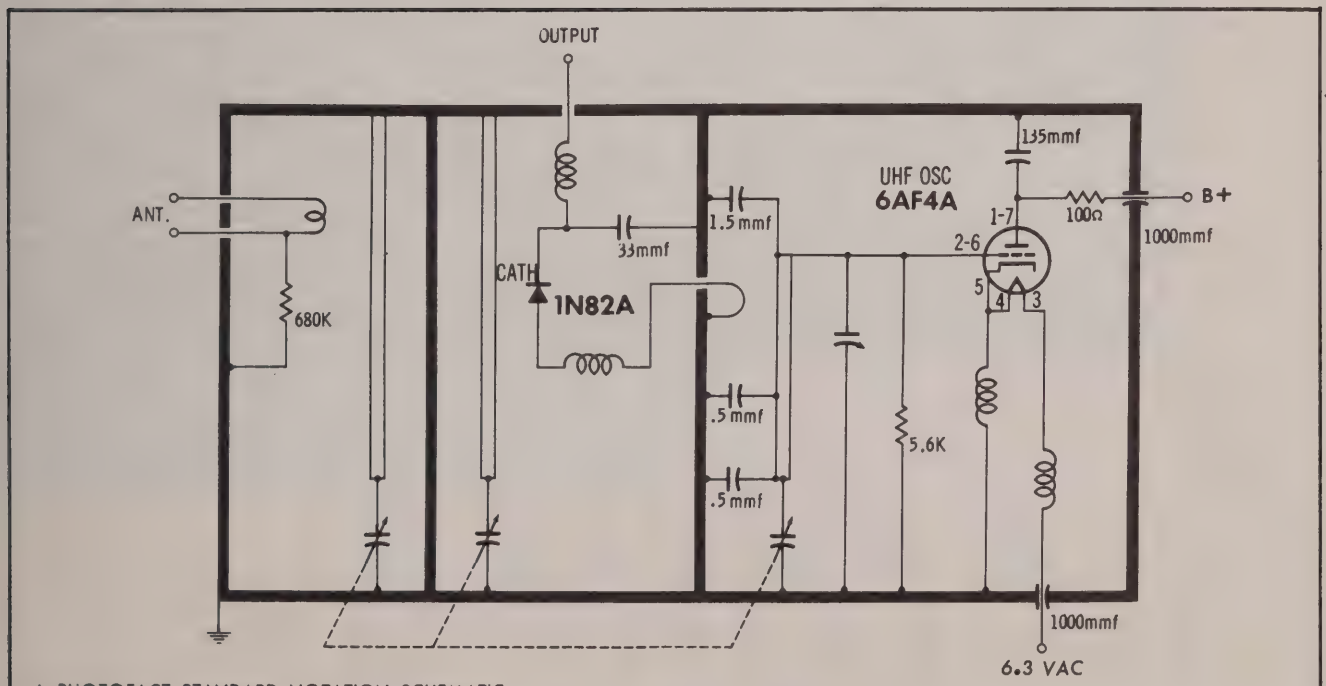


FIG. 201



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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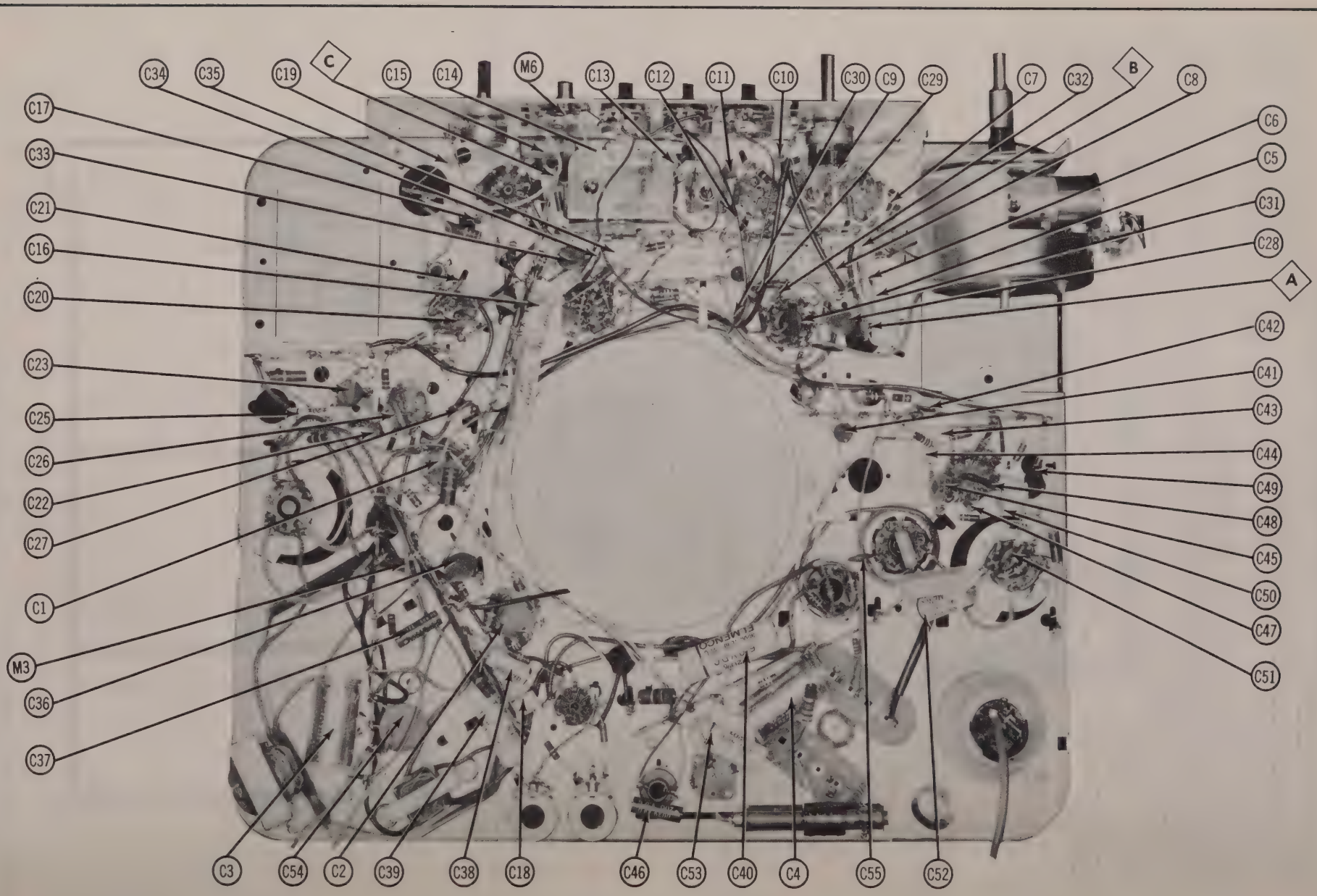
UHF TUNER 700688-1



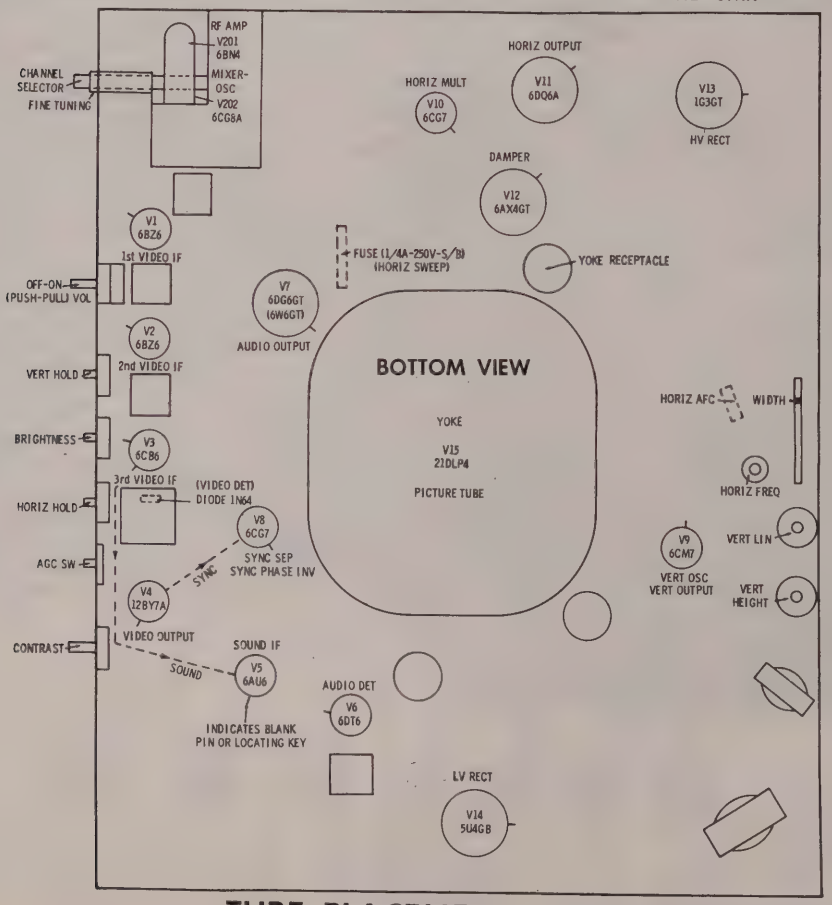
CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

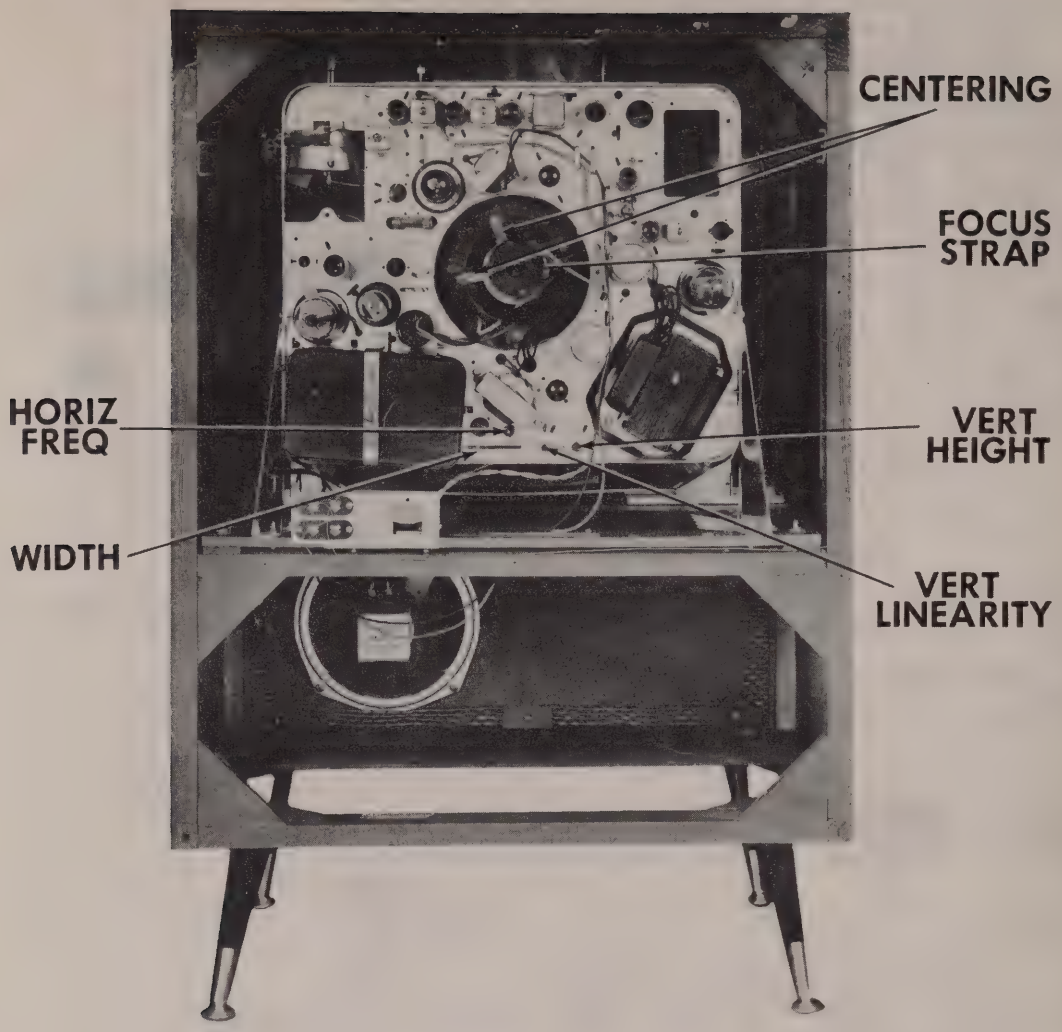
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1meg	47Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	0Ω		
V2	6BZ6	1meg	47Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	0Ω		
V3	6CB6	.1Ω	150Ω	.1Ω	0Ω	▪ 1500Ω	▪ 1500Ω	0Ω		
V4	12BY7A	• 70Ω	470K	0Ω	.1Ω	.1Ω	0Ω	†4300Ω	▪ 8200Ω	0Ω
V5	6AU6	2.3Ω	0Ω	.1Ω	0Ω	▪ 15K	▪ 15K	270Ω		
V6	6DT6	2.9Ω	680Ω	.1Ω	0Ω	†270K	▪ 6800Ω	470K		
V7	6DG6GT	TP	0Ω	†390Ω	†3500Ω	600K	TP	.1Ω	¶	
V8	6CG7	†1meg	4.7meg	0Ω	0Ω	.1Ω	†3300Ω	22K	3300Ω	0Ω
V9	6CM7	†5000Ω	NC	0Ω	0Ω	.1Ω	†1.4meg	• 3meg	• 1.7meg	• 1800Ω
V10	6CG7	†8100Ω	1meg	1300Ω	0Ω	.1Ω	†120K	•95K	1300Ω	0Ω
V11	6DQ6A	NC	.1Ω	TP	†8500Ω	470K	TP	0Ω	15Ω	TOP CAP †23Ω
V12	6AX4GT	TP	NC	¶550K	NC	†2.2Ω	NC	0Ω	.1Ω	
V13	1G3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †417Ω
V14	5U4GB	NC	¶	NC	19Ω	NC	21Ω	NC	¶	
V15	21DLP4	0Ω	11K	Pin 6 †3300Ω	Pin 10 †3300Ω	Pin 11 • 300K	Pin 12 .1Ω			
V201	6BN4	0Ω	1meg	0Ω	.1Ω	▪ 1000Ω	0Ω	1meg		
V202	6CG8A	10K	▪ 5600Ω	0Ω	0Ω	.1Ω	▪ 1000Ω	▪ 10K	0Ω	230K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▪ MEASURED FROM 135V SOURCE.
† MEASURED FROM 290V SOURCE.
‡ MEASURED FROM PIN 3 OF V12.

NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested Alignment Tools: GENERAL CEMENT #8271, 8273, 8275, 8276, 8721, 8722, 9150, 9298, 5003
WALSCO #2516, 2519

Set the Horizontal Hold to the center of its range. Adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. Keep turning B1 in the same direction until the picture falls out of sync. Reverse the direction of rotation until the picture just falls in sync. Rotate the Horizontal Hold to both extreme ends of rotation. The picture should either stay in sync at both ends of rotation or fall out of sync by an equal number of bars at each end. If either of these conditions fail to occur, repeat procedure.

Adjust the Width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

PHOTOFACT* Folder

**ZENITH CHASSIS
16C20, Q, U**

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

ZENITH CHASSIS
16C20, Q, U

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MODEL C1715L (Ch. 16C20)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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EIA MEMBER

ZENITH CHASSIS 16C20, Q, U

ZENITH CHASSIS 16C20, Q, U

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL MODEL C1715L

1. Remove 3 push-on type knobs from the front and 3 from the side.
2. Remove 6 metal screws holding the rear cover. Remove the rear cover.
3. Remove 4 leads from tuner.
4. Remove 2 metal screws holding tuner at the rear. Remove the tuner.
5. Remove speaker lead.
6. Remove 2 metal screws holding speaker. Remove the speaker.
7. Remove 2 metal screws holding the On-Off Volume control bracket.
8. Remove 4 bottom chassis bolts.
9. Remove chassis.

MODEL C1715L (Ch. 16C20)

TRADE NAME	Zenith	MODELS	CHASSIS
		C1415L, C1416B, C1417L, C1715L, C1716C, C1717J, C1719P, C17C20C	16C20
		C1415U, C1416BU, C1417LU, C1715LU, C1716CU, C1717JU, C1719PU, C1720CU	16C20U
		C2001L (Includes Remote Control S-43894)	16C20Q
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Avenue, Chicago 39, Illinois		
TYPE SET	Television Receiver		
TUBES	VHF-Sixteen, UHF-Seventeen		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 180 Watts, 1.65 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 3 push-on type knobs from the front. Remove 4 screws holding trim. Tilt glass out and remove.

FUSE

One fuse is used for low voltage power supply protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch-up the VHF Oscillator, remove Channel Selector and Fine Tuning knobs.

AGC

The AGC may be varied by means of an AGC control. (For location, see "Tube Placement Chart".)

FOCUS

No provision is made to vary the focus on this receiver.

SYNC STABILITY

Sync stability may be varied by means of a Fringe Lock control. (For location, see "Tube Placement Chart".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The Horizontal Frequency coil is used for the Horizontal Hold. (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by adjusting a metallic sleeve, located between the yoke and the picture tube neck, in or out of the yoke.

BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

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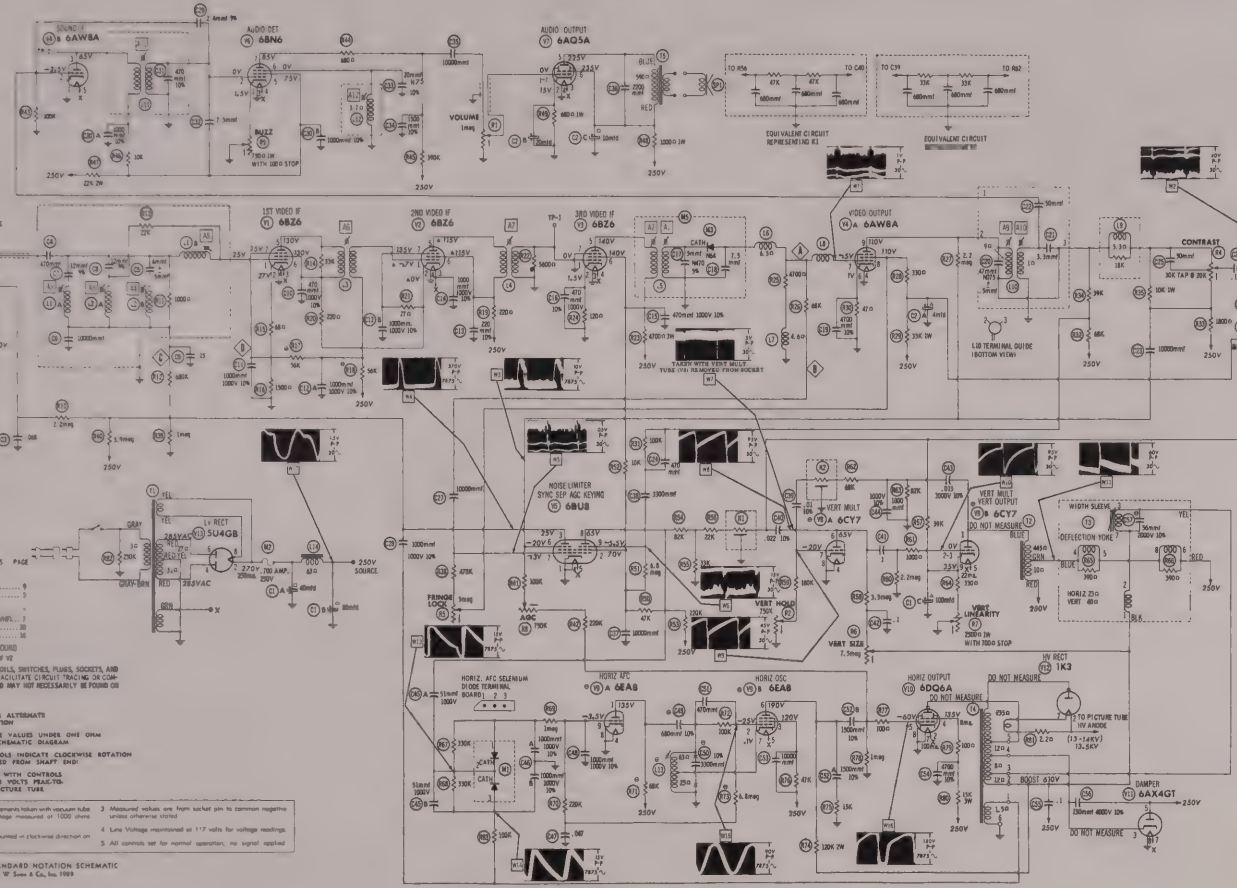
J271

SET 448 FOLDER 2


SOUND IF
V8 6AW8A
AUDIO DET
V6 6BN6
AUDIO OUTPUT
V7 6AQ5A
VOLUME
1meg
BUZZ
TUNER CONNECTIONS
1ST VIDEO IF
V1 6BZ6
2ND VIDEO IF
V2 6BZ6
3RD VIDEO IF
V3 6BZ6
VIDEO OUTPUT
V4 A 6AW8A
CONTRAST
BRIGHTNESS
PICTURE TUBE
V14 17CRP4
TERMINALS L, 2 & 5 TIED INSIDE SOCKET
L10 TERMINAL GUIDE (BOTTOM VIEW)
TAKEN WITH VERT MULT TUBE (V9) REMOVED FROM SOCKET
NOISE LIMITER SYNC SEP AGC KEYING
V5 6BU8
VERT MULT & VERT OUTPUT
V9 A 6CY7
DO NOT MEASURE
DEFLECTION YOKE
WIDTH SLEEVE
VERT LINEARITY
VERT HOLD
VERT SIZE
HORIZ AFC SELENIUM DIODE TERMINAL BOARD
HORIZ AFC
V6 A 6EA8
HORIZ OSC
V6 B 6EA8
HORIZ OUTPUT
V10 6DQ6A
DO NOT MEASURE
HV RECT
V12 1K3
TO PICTURE TUBE HV ANODE
(13-14KV) 13.5KV
BOOST +30V
DAMPER
V11 6AX4GT
DO NOT MEASURE
FRINGE LOCK
AGC
LV RECT
V13 5U4GB
282VAC
270V 700 AMP. 250ma
250V SOURCE
TO CAP OF V12 HV RECT
TO CAP OF VID (HORIZ. OUTPUT)
ADDITIONAL SCHEMATICS PAGE
TUNER 175-181 VHF with UHF preselector 9
TUNER 225-ABA VHF) 9
TUNER 175-181 VHF with UHF preselector 7
TUNER 175-184, 175-188 (VHF) 7
TUNER (216 (UHF) 20
REMOTE CONTROL 1-6894 36
DENOTES CHASSIS GROUND
MEASURED FROM PIN 7 OF V2
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 40 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1 DC voltage measurements taken with vacuum tube voltmeter AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings.
5 All controls set for normal operation, no signal applied
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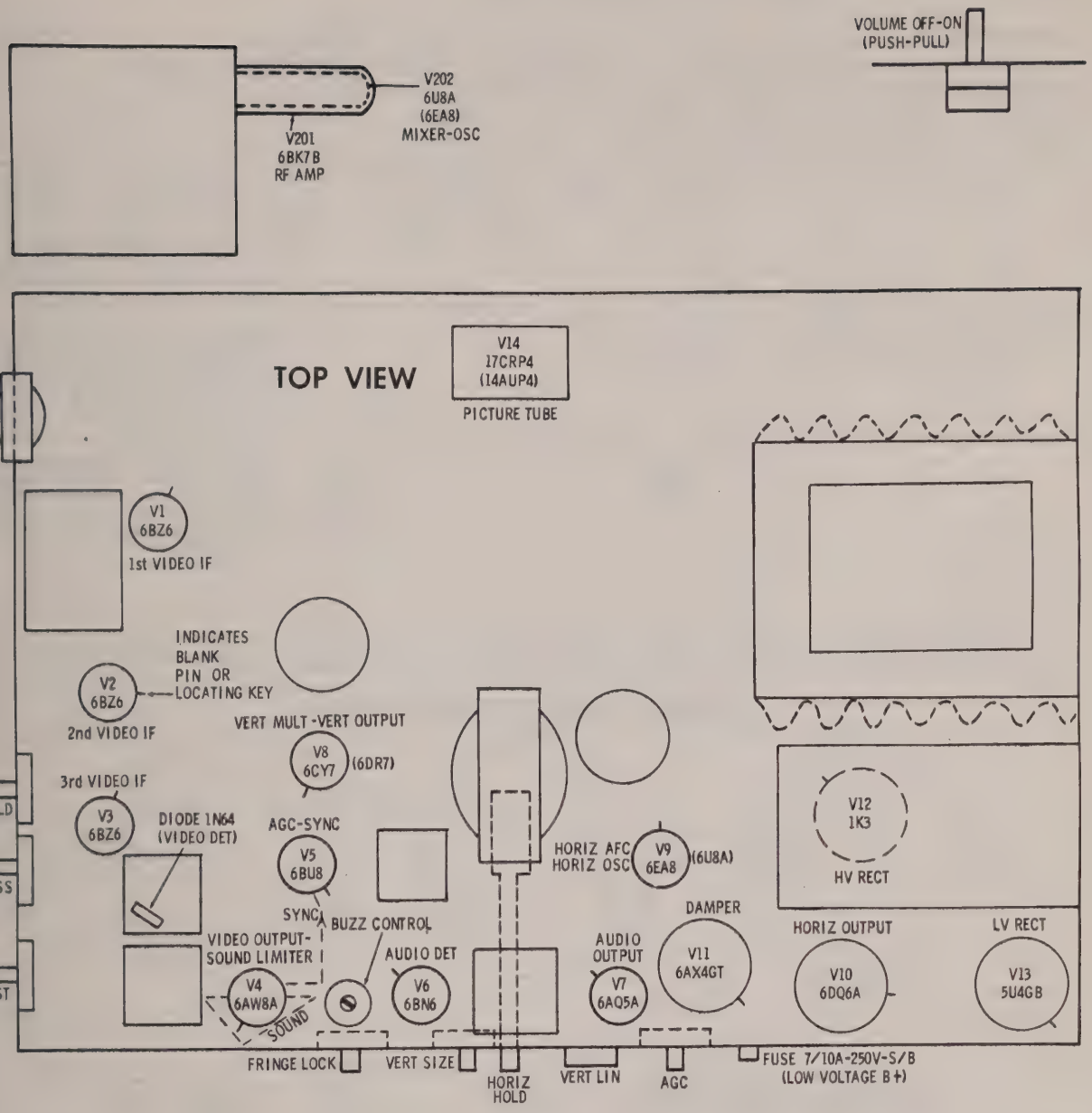
ZENITH CHASSIS 16C20, Q, U

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Fuse (7/10A), V13

SWEEP FAILURE
No raster, has sound Rect. (Horiz. AFC), V9, V10, V11, V12, V13, V14
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, V13
Vert. off freq. V8
Horiz. off freq. V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V4, V6, V7
Overloaded picture V5

SYNC FAILURE
No vert. sync V5
No horiz. sync V5, Rect. (Horiz. AFC), V9
No vert. or horiz. sync V5

ZENITH CHASSIS
16C20, Q, U

FOLDER 2

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

VIDEO IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	470mmf	High side to TP-1. Low side to chassis.	44.0MC (10MC Swp)	39.75MC 41.25MC 45.75MC	Between two channels	Vert. Amp. thru 10K to point Ⓐ. Low side to chassis. (Across Video Det. load)	A1, A2	Set sweep output to produce 3 volts peak to peak on scope. Adjust A1 and A2 alternately for maximum gain and symmetry with the 45.75MC marker positioned as shown in Fig. 1. The 39.75MC marker can fall within ±.5MC of the specified frequency. If the desired response cannot be obtained, see that the cores are entering their respective windings from opposite ends.
2.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. (V202). Low side to chassis.	"	39.75MC 41.25MC 47.25MC	"	"	A3, A4, A5	Connect a clip lead from point Ⓑ to chassis. Connect a clip lead from point Ⓒ to point Ⓓ. Use high scope gain and adjust A3 thru A5 for MINIMUM amplitudes at markers as shown in Fig. 2. A3 controls 39.75MC, A4 controls 41.25MC and A5 controls 47.25MC.
3.	"	"	"	41.25MC 42.75MC 45.0MC 45.75MC	"	"	A6, A7, A8, & Mixer Plate Coil	Disconnect the clip lead from point Ⓓ and connect to chassis. Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. A6 affects the low frequency side and A7 affects the high frequency side.

SOUND IF ALIGNMENT

Connect an adjustable attenuator between the antenna and the receiver terminals.
Tune in a TV station and adjust the attenuator until the signal is below the limiting level of the Audio Detector as evidenced by a hiss similar to super-regeneration in the sound. Adjust A9, A10, A11 and A12 for maximum sound and best quality. Adjust the Buzz control (R9) for MINIMUM buzz. If the hiss disappears during alignment, further reduce the signal until the hiss returns.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6 & 8

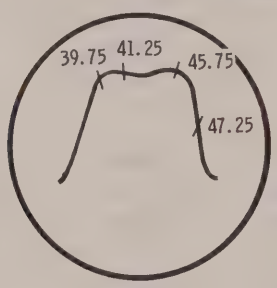


FIG.1

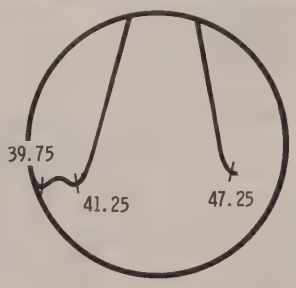


FIG.2

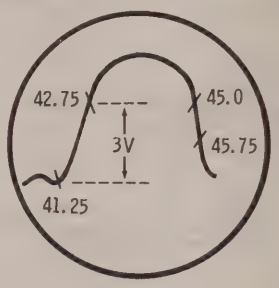
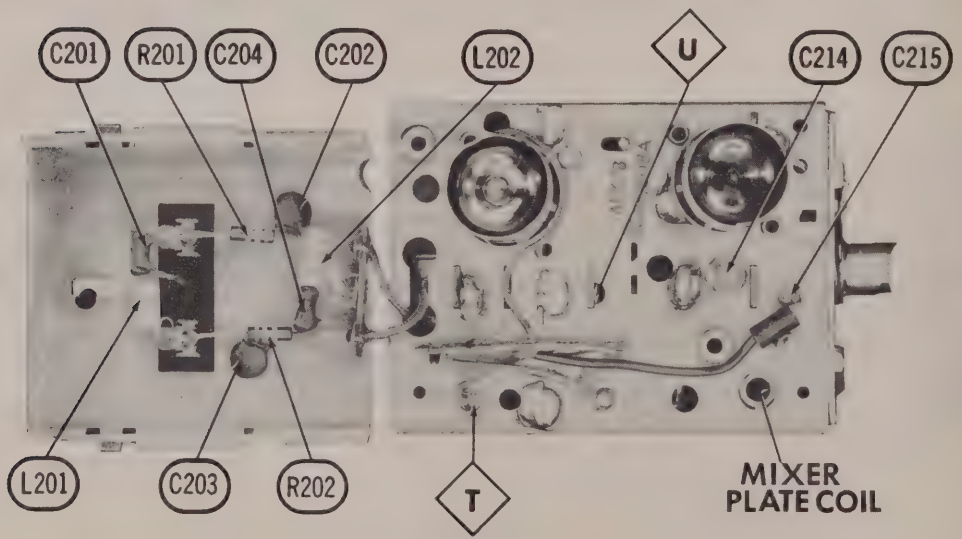
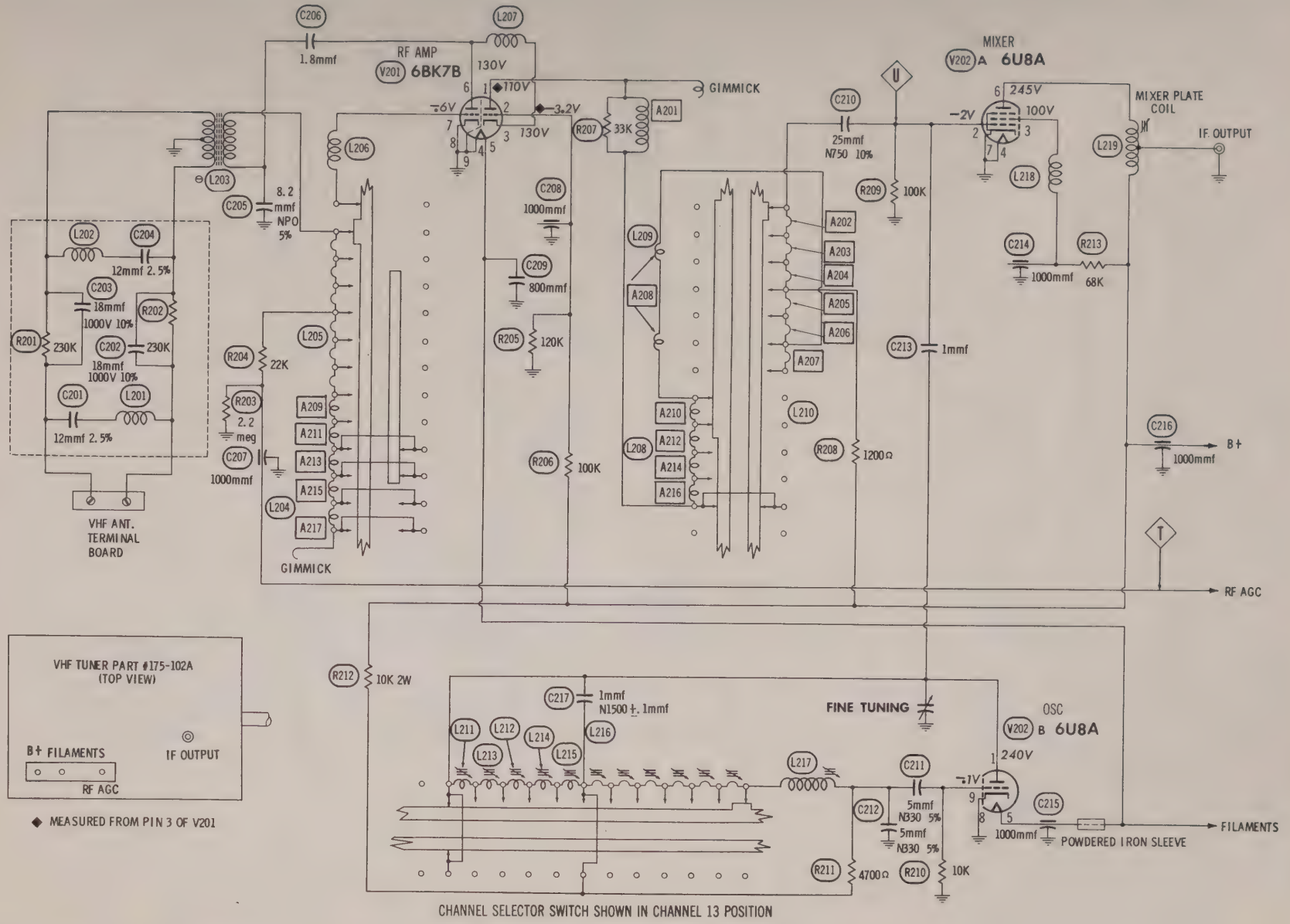


FIG.3



TUNER 175-102A TOP VIEW



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VHF TUNER 175-102A

ZENITH CHASSIS 16C20, Q, U

TUNER ALIGNMENT INSTRUCTIONS

175-101, 102A

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: GENERAL CEMENT
WALSCO

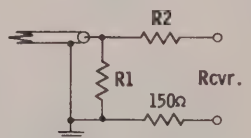
VHF OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range by turning the Fine Tuning shaft until the small index hole in the drive cam is directly over the small hole just below the channel 13 oscillator adjustment screw. Starting with the highest channel operating in the area, adjust the appropriate oscillator adjustment screw for best picture and sound for each channel available.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2 volt bias supply to point (T). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usuable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru matching network (Fig. 201).	213MC	211.25MC 215.75MC	13	Vert. amp. thru 10K to point (U). Low side to chassis.	A201	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown.
2.	"	"	207MC	205.25MC 209.75MC	12	"	A202	"
3.	"	"	201MC	199.25MC 203.75MC	11	"	A203	"
4.	"	"	195MC	193.25MC 197.75MC	10	"	A204	"
5.	"	"	189MC	187.25MC 191.75MC	9	"	A205	"
6.	"	"	183MC	181.25MC 185.75MC	8	"	A206	"
7.	"	"	177MC	175.25MC 179.75MC	7	"	A207	"
8.	"	"	85MC	83.25MC 87.75MC	6	"	A208, A209	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown. Adjust first coil for proper marker position and second coil for maximum gain and symmetry.
9.	"	"	79MC	77.25MC 81.75MC	5	"	A210, A211	"
10.	"	"	69MC	67.25MC 71.75MC	4	"	A212, A213	"
11.	"	"	63MC	61.25MC 65.75MC	3	"	A214, A215	"
12.	"	"	57MC	55.25MC 59.75MC	2	"	A216, A217	"



Zo = Impedance of Cable

Zo	R1	R2
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω

FIG. 201

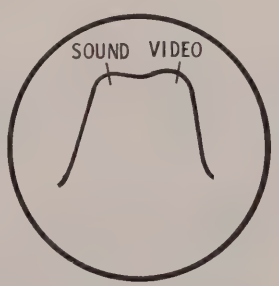
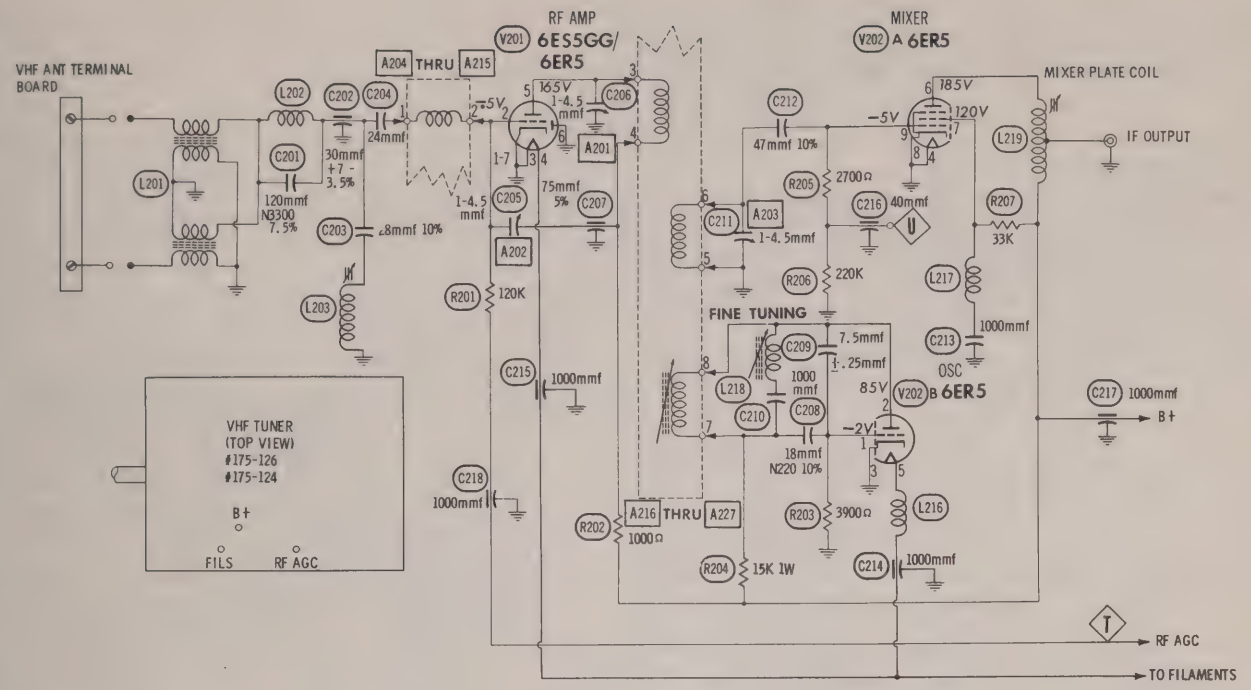


FIG. 202



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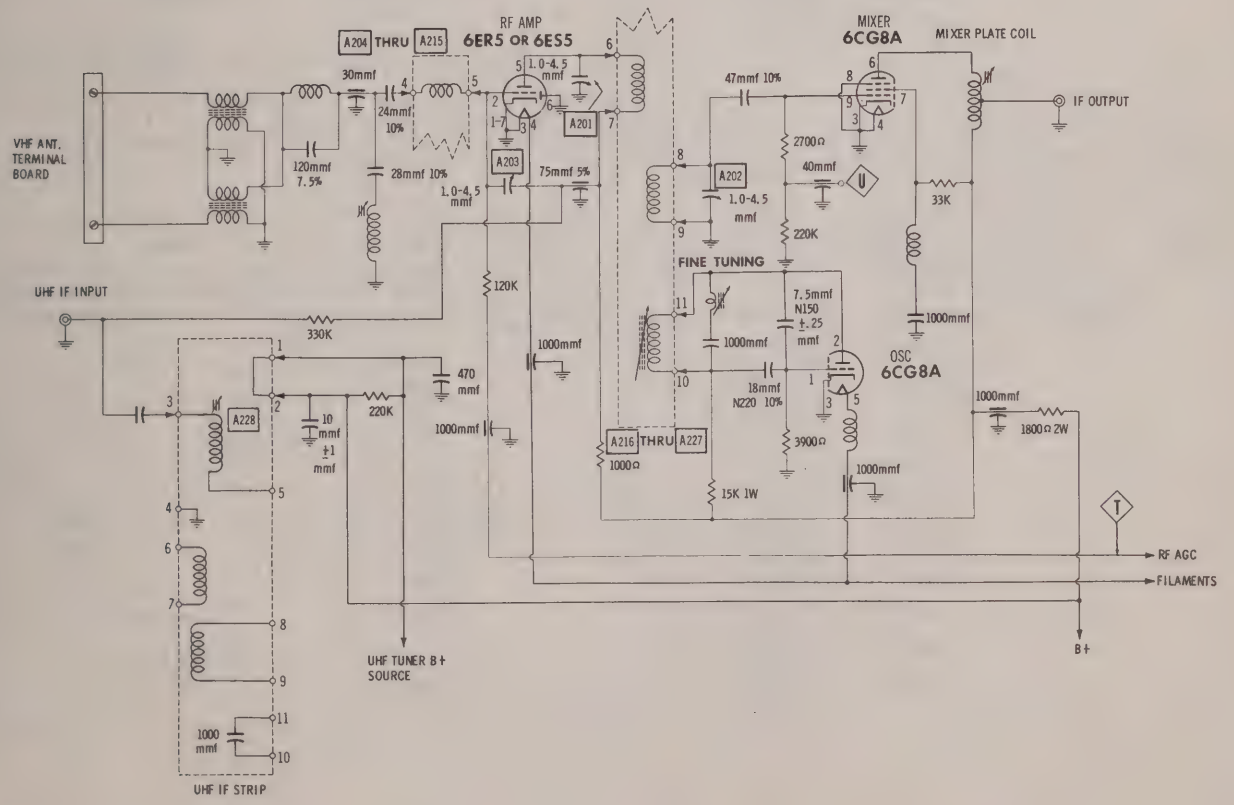
VHF TUNER 175-124, 175-126



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VHF TUNER 175-123

TUNER ALIGNMENT INSTRUCTIONS

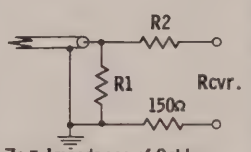
PRE-ALIGNMENT INSTRUCTIONS FOR TUNERS #175-123, 175-124, 175-126

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201 thru A203 ... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A216 thru A227 ... GENERAL CEMENT #8607, 9291
WALSCO #2520, 2522, 2523, 2524, 2537

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point (T). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Fig. 201	Across antenna terminals thru matching transformer (Fig. 201).	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 202. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope.
2.	"	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 202. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	



Zo = Impedance of Cable

Zo	R1	R2
50Ω	56Ω	120Ω
75Ω	82Ω	110Ω

FIG.201

FIG.202

VHF OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Fig. 201	Across antenna terminals thru matching transformer (Fig. 201).	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

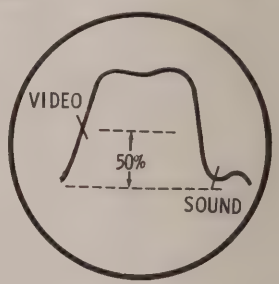
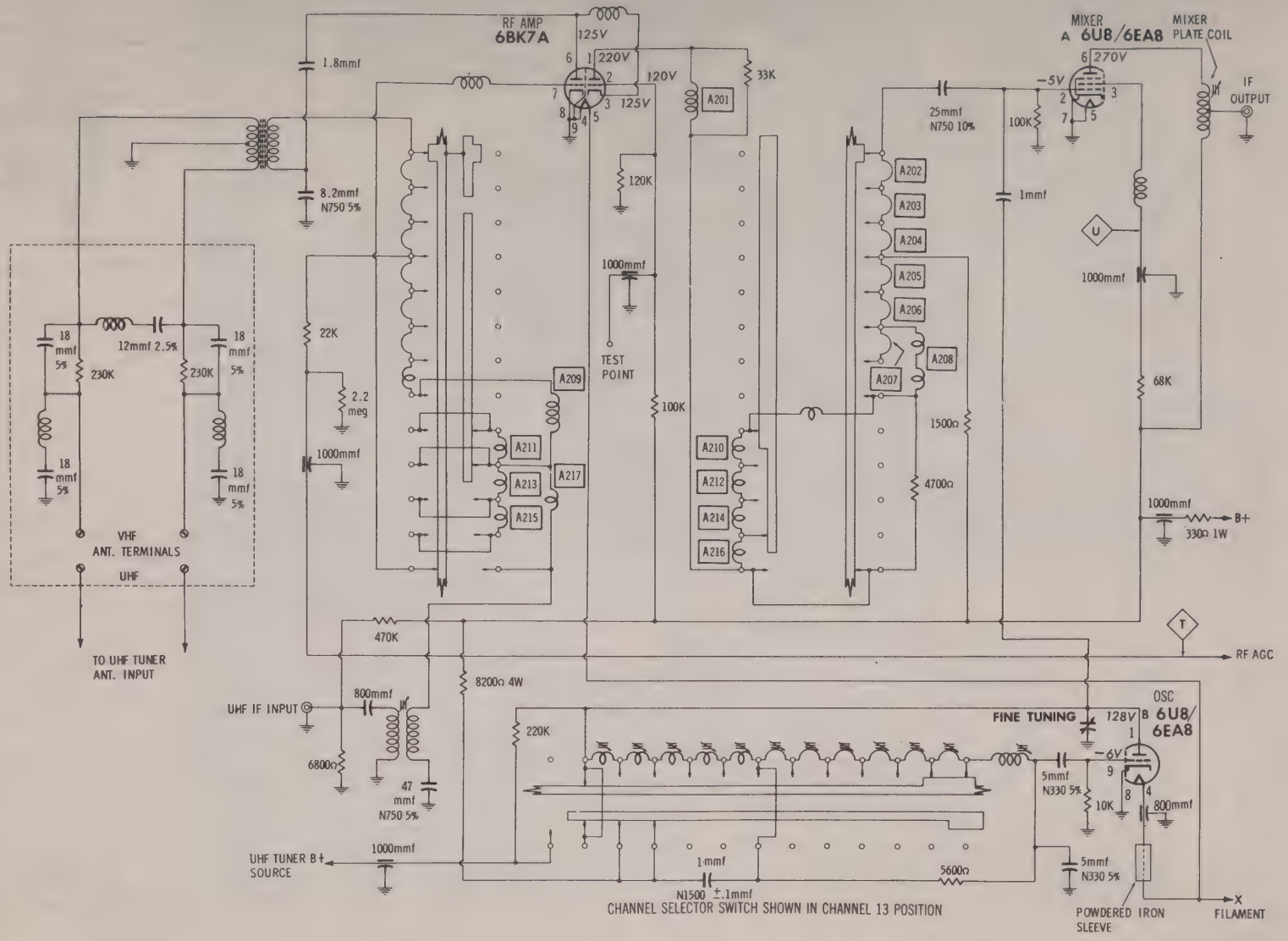


FIG.203



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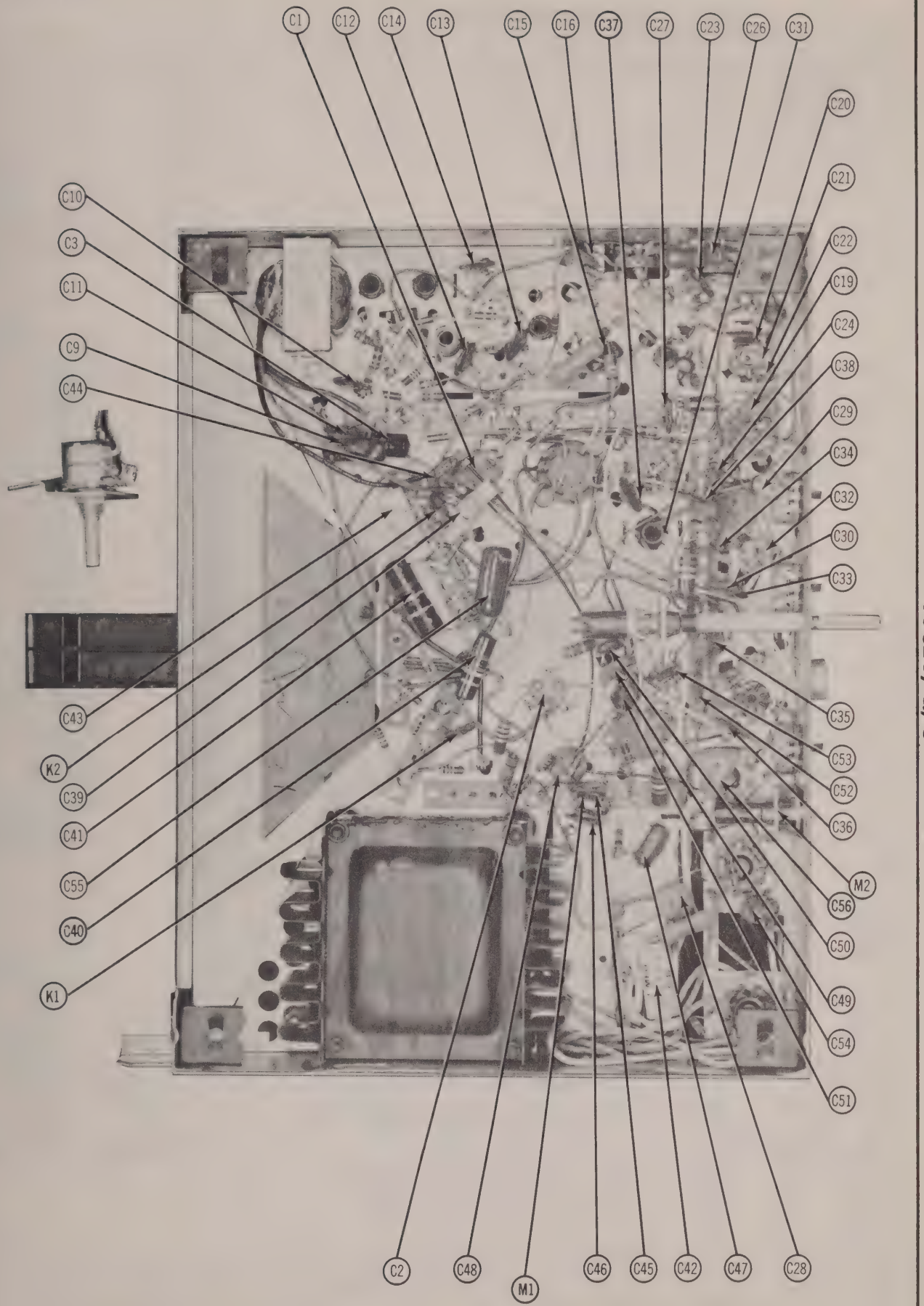
VHF TUNER with UHF Provisions 175-101

ZENITH CHASSIS
16C20, Q, U

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS BOTTOM VIEW - CAPACITOR, MISC. IDENTIFICATION

SET 448 FOLDER 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp.	6BD6	
V2	2nd Video IF Amp	6BD6	
V3	3rd Video IF Amp	6BD6	
V4	Video Output-Sound IF	6AW8A	
V5	AGC-Keying-Noise Limiter-Sync Sep	6BU8	
V6	Audio Det	6BH6	
V7	Audio Output	6AQ8A	
V8	Vert Multi -Vert Output	6CT7	6DR7 *
V9	Horiz AFC-Horiz Osc	6EA8	6U8A*
V10	Horiz Output	6DQ6A	
V11	Damper	6AX4GT	
V12	HV Rect	1X2CT	1G3GT*
V13	LV Rect	5U4GB	

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	ZENITH Part No.	GENERAL ELECTRIC Part No.	RCA Part No	SYLVANIA Part No	
V14	17CRP4			17CRP4 ①	① "Silver Screen 85"
	14AUP4			14AUP4 ①	

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA ZENITH Part No.	AEROVOX Part No.	CORNELL DUBILIER Part No.	MALLORY Part No.	PYRAMID Part No	SPRAGUE Part No	NOTES
C1A	40	400	23-3123	AFB4-5793	C0890	TPS33.3	TMD-58	TVL-3583	
B	80	400					TD-100-50		
C	100	50							
C2A	45	350	23-3744	AFS3-180	C1445	FP345.2		TVL-3806.6	
B	90	25							
C	80	600							

FIXED CAPACITORS

Capacity values given in the rating columns are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING CAP	RATING VOLT	RATING TOL	REPLACEMENT DATA ZENITH Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL DUBILIER Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C1	.068	200		23-2572	P388N-068		CUB4S68	GEM-4168	47M-368	
C2	470			23-5	BPD-00047	DD-471	BYA10T47	B-347	SGA-T47	
C3	4		s .5mmf	23-2549			CD7EC		57CCB-T4S s .5mmf	
C4	10000			23-3	BPD-01	DD-103	BYA10S	B-110	9HK-S	
C7	12		5%	23-3255					57CC-Q12S 5% *	
C8	12		5%	23-3235					57CC-Q12S 5% *	
C9	15	200		23-3136	P382N-15		CUB2P15	GEM-3015	47M-P15	
C10	470	1000	10%	22-16				JL-347	SGA-T47S 10% *	
C11	1000	1000	10%	22-17				JL-310	SGA-D1S 10% *	
C12A	1000	1000	10%	22-21				JL-310		
B	1000	1000	10%					JL-210		
C13	120		10%	23-3236	1469-00022	TCZ-120	22R5T121	JL-322	SGA-T12S 10% *	
C14	1000	1000	10%	22-17				JL-310	SGA-D1S 10% *	
C15	470	1000	10%	22-3023				JL-347	SGA-T47S 10% *	
C16	470	1000	10%	22-16				JL-347	SGA-T47S 10% *	
C17	5		94470 5%	23-2390						
C18	7 1			23-2743			DD-7R5	L10V8	SGA-V7S	
C19	4700		10%	23-14	DS-4700			JL-347		
C20	47		9079 s 5mmf	23-3457						
C21	3 3			23-2343	NPO-SI 3.3	TCZ-3R3	L10V33	2T-3S33	57CCB-V33	
C22	50			23-3450	NPO-SI 50	DS-500	L10Q5	2T-S45	SGA-Q5	
C23	10000			23-3	BPD-01	DD-103	BYA10S	B-110	9HK-S	
C24	470			23-5	BPD-00047	DD-471	BYA10T47	B-347	SGA-T47	
C25	50			23-3450	NPO-SI 50	DS-500	L10Q5	2T-S45	SGA-Q5	
C26	1	200		23-1777	P388N-1	DF-104	CUB2P1	GEM-301	47M-P1	
C27	10000			23-3	BPD-01	DD-103	BYA10S	B-110	9HK-S	
C28	1000	1000	10%	22-17				JL-310	SGA-D1S 10% *	
C29	3 4		5%	23-2596					57CCB-V34S 5% *	
C30A	1000		10%	22-21				JL-210		
B	1000		10%					JL-210		
C31	470		10%	23-3480	1464-00047	DS-471	22R5T47	MCB345	MS-347	
C32	7 5			23-2742		DD-7R5	L10V8		SGA-V7S	
C33	30		10%	23-3139						
C34	1500		10%	23-13	DS-1500			JL-315	SGA-D15S 10% *	
C35	10000			23-3	BPD-01	DD-103	BYA10S	B-110	9HK-S	
C36	2200			23-9	BPD-00033	DD-333	BYA10S33	B-333	9HK-S33	
C37	10000			23-3	BPD-01	DD-103	BYA10S	B-110	9HK-S	
C38	3300			23-11	BPD-00033	DD-333	BYA10S33	B-333	9HK-S33	
C39	01	200	10%	23-2565	V84C2S1		PM4S2	GTM-211	47M-S1	
C40	022	400	10%	23-2521	V84C4S22		PM4S22	GTM-4122	47M-S22	
C41	1	600		23-2081	P468N-1	DF-104	CUB4P1	GEM-401	47M-P1	
C42	1	600		23-3125	P468N-1	DF-104	CUB4P1	GEM-601	47M-P1	
C43	015	1000	10%	23-3540					57M-S15	
C44	1000	1000	10%	23-17				JL-310	SGA-D1S 10% *	
C45A	51	1000	10%	22-25		DD-500	L10Q5	UC-545	SGA-Q5	
B	51	1000	10%			DD-500	L10Q5	UC-545	SGA-Q5	
	1000	1000	10%	22-21				JL-210		
B	1000	1000	10%					JL-210		
C47	047	300		23-1778	P388N-047	DF-503	CUB2S47	GEM-4147	47M-S47	
C48	1000	1000	10%	23-17				JL-310	SGA-D1S 10% *	
C49	680		10%	23-3068	1464-00068	DS-681	1R5T68	JL-368	MS-368	
C50	3300		10%	23-3069	1464-0033		1R5D33	GTM-5233	MS-333	
C51	470		10%	23-5	BPD-00047	DD-471	BYA10T47	B-347	SGA-T47	
C52A	1500		10%	22-23	BPD-222015			JL-215		
B	1500		10%					JL-215		
C53	10000			23-3	BPD-01	DD-103	BYA10S	B-110	9HK-S	
C54	4700		10%	23-14	DS-4700			JL-347		
C55	1	600		23-3125	P468N-1	DF-104	CUB4P1	GEM-601	47M-P1	
C56	120	4000	10%	23-3897					30CA-Q12S 10% *	③
C57	56	3000	10%					2DY-456	30CA-Q56S 10% *	

① Some versions may use 470mmf 10% in this application (Part #23-6).
② Not used in some versions
③ Value may vary. Replace with original value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ZENITH Part No.	CENTRALAB Part No	CLAROSTAT Part No.	IRC Part No	MALLORY Part No.	INSTALLATION NOTES
R1A	1meg	½	63-4088		A47-750K-B	QU-156	PT5SL	Volume
B	Switch					Not Req.		Push-Pull Off-On
R2A	750K	½	63-3263	AB-86	A47-750K-B	QU-156	PTA75L	Vert. Hold
B	Shaft			AK-19	RN-3	TQ	Not Req	
R3A	250K	½	63-4048	B-80	A47-250K-B	QU-130	TA25AL	Brightness
B	Shaft			AK-19	RN-3	Not Req.	Not Req.	
R4	30K	½	63-4076		A47-5meg-S	QU-141	PTA5SL	Contrast, Tap ② 20K
R5A	5meg	½	63-4080	AB-87		QU-141	PTA5SL	Fringe Lock
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R6A	5 5meg	½	63-4081	AB-89	A47-5 5meg-S	QU-142	PTA55L	Vert Size
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R7	35000	1(WW)	63-4445		39-3000-700		FL-2 5K *	Vert. Lin. ,Stop ② 7000Ω
R8A	750K	½	63-3262	AB-86	A47-750K-B	QU-136	PTA75AL	AGC
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R9	750Ω	1(WW)	63-3284		39-800-50		FL-75 †	Buzz, Stop ② 100Ω

* Use 700Ω resistor in series with terminal. † Use 150Ω resistor in series with terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH Part No.	NOTES
R10	2 2meg		63-1926	
R11	1000Ω		63-1786	
R12	680K		63-1905	
R13	22K		63-1841	
R14	33K		63-1845	
R15	68Ω		63-1736	
R16	1500Ω		63-1792	
R17	56K			Note 1
R18	56K			Note 1
R19	220Ω		63-1758	
R20	220Ω		63-1758	
R21	27Ω		63-1719	
R22	5600Ω		63-1472	
R23	4700Ω	3	63-4370	
R24	120Ω		63-1747	
R25	4700Ω		63-1863	
R26	68K		63-1862	
R27	2 2meg		63-1925	
R28	330Ω		63-1794	
R29	33K	1	63-957	
R30	47Ω		63-1729	
R31	100K		63-1870	
R33	68Ω		63-1552	
R34	39K		63-1852	
R35	10K	1	63-4071	
R36	150K		63-1878	
R37	330K		63-1890	
R38	470K		63-1898	
R39	1meg		63-1911	
R40	3 5meg		63-4374	
R41	100K		63-1869	
R42	220K		63-1853	
R43	100K		63-1870	
R44	680Ω		63-1905	
R45	390K		63-1894	
R46	20K		63-1827	

ITEM No.	RATING OHMS	RATING WATT	ZENITH Part No.	NOTES
R47	22K	2	63-1568	
R48	1000Ω	1	63-965	
R49	680Ω	1	63-2290	
R50	47K		63-1855	
R51	6 8meg		63-4441	
R52	10K	1	63-4420	
R53	220K		63-1883	
R54	82K		63-1865	
R55	33K		63-4008	
R56	22K		63-3848	
R57	39K		63-1852	
R58	3 3meg		63-4080	
R59	180K		63-1890	
R60	2 2meg		63-1925	
R61	1000Ω		63-1788	
R62	56K		63-1862	
R63	82K		63-1866	
R64	330Ω		63-1765	
R65	390Ω		63-1894	
R66	390Ω		63-1894	
R67	330K		63-1890	
R68	330K		63-1890	
R69	18Ω		63-1811	
R70	820K		63-1883	
R71	68K		63-1863	Note 2
R72	100K		63-1869	
R73	6 8meg		63-4078	Note 3
R74	180K	3	63-2302	
R75	15K		63-1834	
R76	47K		63-1858	
R77	100Ω		63-1744	
R78	1meg		63-1912	
R79	100Ω		63-1744	
R80	18K	3	63-4458	
R81	2 2Ω		63-3214	
R82	220K		63-3607	
R83	100Ω		63-1899	

Note 1. Some versions may use 180K in this application (Part #63-1873).
Note 2. Some versions may use 150K in this application (Part #63-1869).
Note 3. Some versions may use 10meg in this application (Part #63-4457).

COILS (RF-IF)

ITEM No	USE	ZENITH Part No.	Gramer Part No.	Hallonan Part No.	Merit Part No.	Miller Part No.	Ram Part No	NOTES
L1A	1st Video IF	S-42892						
B	41.25MC Trap							
L2A	39.25MC Trap	S-41883						
B	47.25MC Trap							
L3	2nd Video IF	S-42874	17-4523 *	17-4523 *	TV-130 *	6234 *	VF-3 *	
L4	3rd Video IF	S-42539	17-4523 *	17-4523 *	TV-130 *	6234 *	VF-3 *	
L5	4th Video IF	S-42734						
L6	Series Peaking Coil	S-42515	19-3125	19-3125	TV-196	6153	VP-4	120uh
L7	Shunt Peaking Coil	S-42516	19-3125	19-3125	TV-196	6153	VP-4	110uh
L8	Resonant Choke	S-21888						6.7uh
L9	Series Peaking Coil	S-20890						130uh †
L10	1st Sound IF	S-42872						
L11	2nd Sound IF	S-42875						
L12	Quadrature Coil	S-42539	20-1005 ▲	20-1005 ▲	TV-1E ▲	1480 ▲		

† Wound on 18K resistor. * Drill new mounting hole. ▲ Remove C33 (30mmf).

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	DC RES. SEC.	ZENITH Part No.	Hallonson Part No.	Merit Part No.	Miller Part No.	Ram Part No.	Thordarson Part No.	NOTES
L13	68Ω		B-45679 ①	HS-7	TV-165	6111 ▲		HS-7	Horiz. Freq. Tapped ② 25Ω

① Alternate Part #B-45643. ▲ Replace C50 (3300mmf) with 3900mmf.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES	RATINGS INDUCTANCE @ CURRENT 1000 ~(1	REPLACEMENT DATA ZENITH Part No.	Hallonson Part No.	Merit Part No	Ram Part No	Stancor Part No.	Thordarson Part No.	Triad Part No.
L14	250A	83Ω	4 Hy	95-1581						

TRANSFORMER (POWER)

ITEM No	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ZENITH Part No.	Hallonson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.
T1	117V ① 1.65A	370VCT @ 250A	5V ⑤ 3A	98-1849						
	SEC. 3	SEC. 4	SEC. 5							
	6 3V @ 7.5A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA ZENITH Part No.	Hallonson Part No.	Merit Part No	Ram Part No.	Rogers Part No.	Stancor Part No	Thordarson Part No	Triad Part No
T2	Vert. Output	95-1548	26371 ①	A-2821	V316 ②	VO35 ②	A-8149	26371 ①	A-117X
T3	Yoke-Horiz (12MH) (80°)-Vert. (37MH)	95-1645	Y-33 ③ ⑦	MDF-91 ⑤	Y90T12/47 ⑤ ⑦	PCM1045 ④ ⑦	DY-12A ⑤ ⑦	Y-33 ②⑧	Y-40 ⑥ NW24 ④ YC-1
	Rear Cover & Centering Device	S-23237							
T4	Horiz. Output	S-45310							D-155 ⑧

① Drill new mounting holes. Connect as autoformer
② Cut and bug green lead.
③ Connect yoke terminal #2 to terminal #3 of T4, yoke terminal #7 to terminal #2 of T4 with damping capacitor across yoke terminals #3 and #7.
④ Use original yoke damping network, if necessary.
⑤ Use original rear cover and centering device. Connect same as original. Cut and form a piece of .010 gauge fish paper inside the yoke itself and support with an acetate cement, to provide an insulation between the width sleeve and the yoke proper.
⑥ Use original bracket. Connect original S to 6, 4 to 5, 3 to 4, 2 to 3, 1 to 2, 8 to 1.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ZENITH Part No.	Hallonson Part No.	Merit Part No.	Ram Part No.	Stancor Part No.	Thordarson Part No.	Triad Part No.	NOTES
T5	4500Ω	3-4Ω	95-1647	34848 ①	A-3036			34848 ①	S-6X ①	① Use original frame.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH Part No.	REPLACEMENT DATA QUAM Part No	NOTES
SP1	4"	PM	3-4Ω	45-858	4A07	

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	ZENITH Part No.	REPLACEMENT DATA
K1	Vert. Integrator		87-5	Sprague V-16
K2	Vert. Feedback		87-4	Sprague V-14

RECTIFIERS

ITEM No	RATING CURRENT (Measured)	REPLACEMENT DATA ZENITH Part No.	FEDERAL Part No.	INTERNATIONAL Part No.	SARKES TARZIAN Part No.	SYLVANIA Part No.	NOTES
M1		105-30 ①	SD-91 ② ③	K1615 ①			① Selenium Type. ② Silicon Type. ③ Two Required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ZENITH Part No. FUSE	ZENITH Part No. HOLDER	LITTELFUSE Part No. FUSE	LITTELFUSE Part No. HOLDER	BUSS Part No. FUSE	BUSS Part No. HOLDER
M2	M	700A 250V 8/B	136-38	63-32	333.750 (3AG) (M-7/10A-250V-8/B)	342010	M 7/10	HM 1/2 to 3/4

ZENITH CHASSIS 16C20, Q, U

FOLDER 2

PARTS LIST AND DESCRIPTIONS (Continued)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M3	Clevite 1N64	103-23	1N64	1N295	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Tuner	175-102	VHF Ch. 16C20
	Tuner	175-124	VHF Ch. 16C20
	Tuner	175-126	VHF Ch. 16C20Q
	Tuner	175-101	VHF with UHF provisions Ch. 16C20U
	Tuner	175-123	VHF with UHF provisions Ch. 16C20U
	Tuner	175-8	UHF Ch. 16C20U
M5	Video Det. Assy.	S-43622	Complete

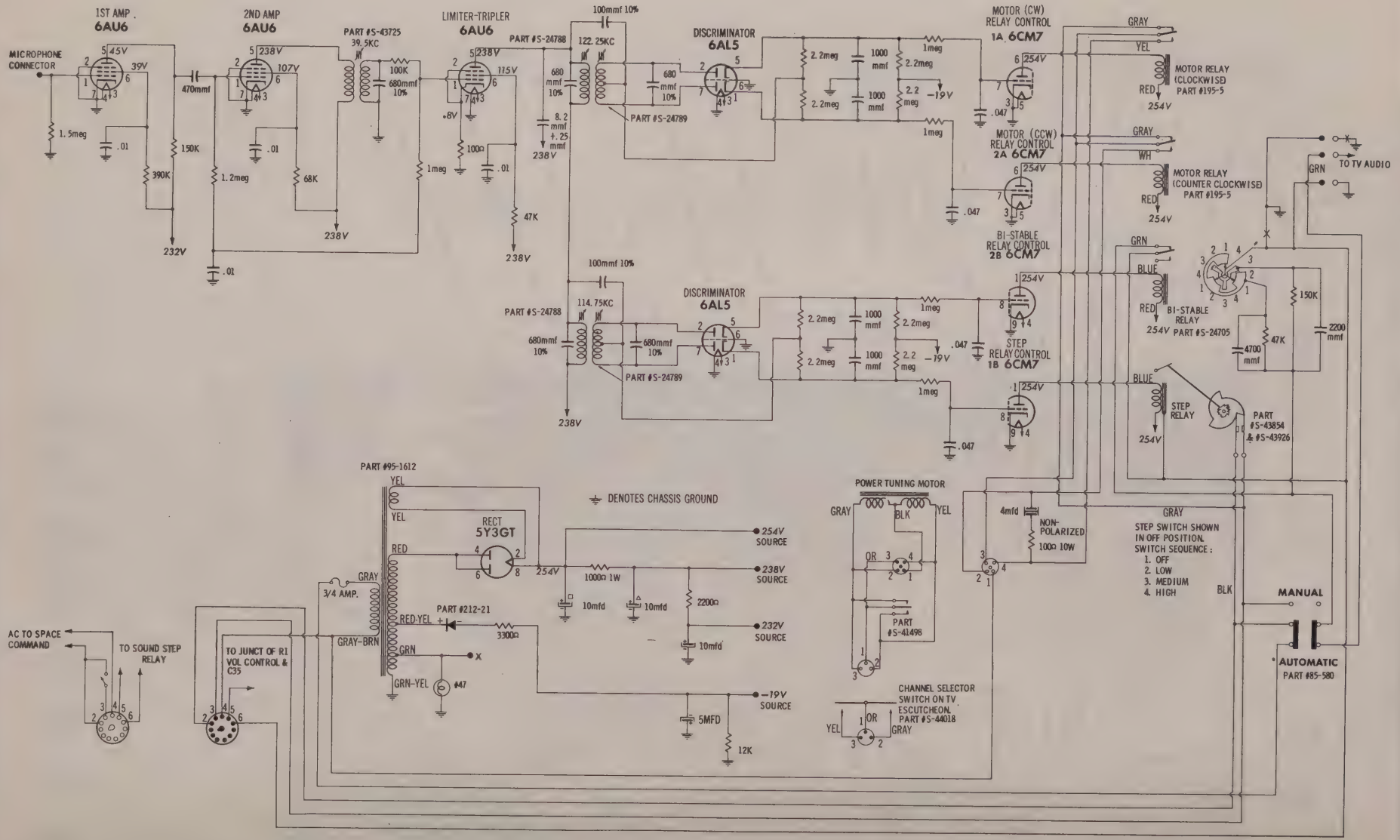
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	192-257	Models C1415L, LU
Safety Glass	192-258	Models C1416B, BU, C1417L, LU
Safety Glass	192-249	Models C1715L, LU, C2001L
Safety Glass	192-259	Models C1716C, CU, C1717J, JU, C1719P, PU, C1720C, CU
Knob	46-1962	Channel Selector, Models C1415L, LU
Knob	46-2129	Channel Selector, Models C1416B, BU, C1417L, LU
Knob	46-2076	Channel Selector, Models C1715L, LU
Knob	46-2004	Channel Selector, Models C1716C, CU, C1717J, JU
Knob	S-43823	Channel Selector, Models C1719P, PU, C1720C, CU
Knob	S-40969	Channel Selector, Model C2001L
Knob	S-40431	Fine Tuning, Models C1415L, LU, C1416B, BU, C1417L, LU
Knob	S-43768	Fine Tuning, Models C1715L, LU, C1716C, CU, C1717J, JU, C1719P, PU, C1720C, CU, C2001L
Knob	S-45485	UHF Dial, Models C1415LU, C1416BU, C1417LU
Knob	S-43927	UHF Dial, Models C1715LU, C1716CU, C1717JU, C1719PU, C1720CU
Knob	46-1960	Volume, Models C1415L, LU
Knob	46-2127	Volume, Models C1416B, BU, C1417L, LU
Knob	46-2077	Volume, Models C1715L, LU
Knob	S-43493	Volume, Models C1716C, CU, C1717J, JU, C1719P, PU, C1720C, CU
Knob	46-1924	Volume, Model C2001L
Knob	S-44381	Brightness, Contrast, Vertical Hold, Models C1415L, LU, C1416B, BU, C1417L, LU
Knob	S-44382	Brightness, Contrast, Vertical Hold, Models C1715L, LU, C1716C, CU, C1717J, JU, C1719P, PU, C1720C, CU
Knob	S-44482	Brightness, Contrast, Vertical Hold, Model C2001L
Knob	46-2116	Horizontal Hold, Models C1415L, LU, C1416B, BU, C1417L, LU
Knob	46-2117	Horizontal Hold, Models C1715L, LU, C1716C, CU, C1717J, JU, C1719P, PU, C1720C, CU
Knob	46-2115	Horizontal Hold, Model C2001L
Cabinet	14-2574	Models C1415L, LU
Cabinet	14-2575	Models C1416B, BU
Cabinet	14-2577	Models C1417L, LU
Cabinet	14-2589	Models C1715L, C2001L
Cabinet	14-2922	Model C1715LU
Cabinet	14-2569	Model C1716C
Cabinet	14-2579	Model C1716CU
Cabinet	14-2570	Model C1717J
Cabinet	14-2580	Model C1717JU
Cabinet	14-2572	Model C1719P
Cabinet	14-2582	Model C1719PU
Cabinet	14-2573	Model C1720C
Cabinet	14-2583	Model C1720CU

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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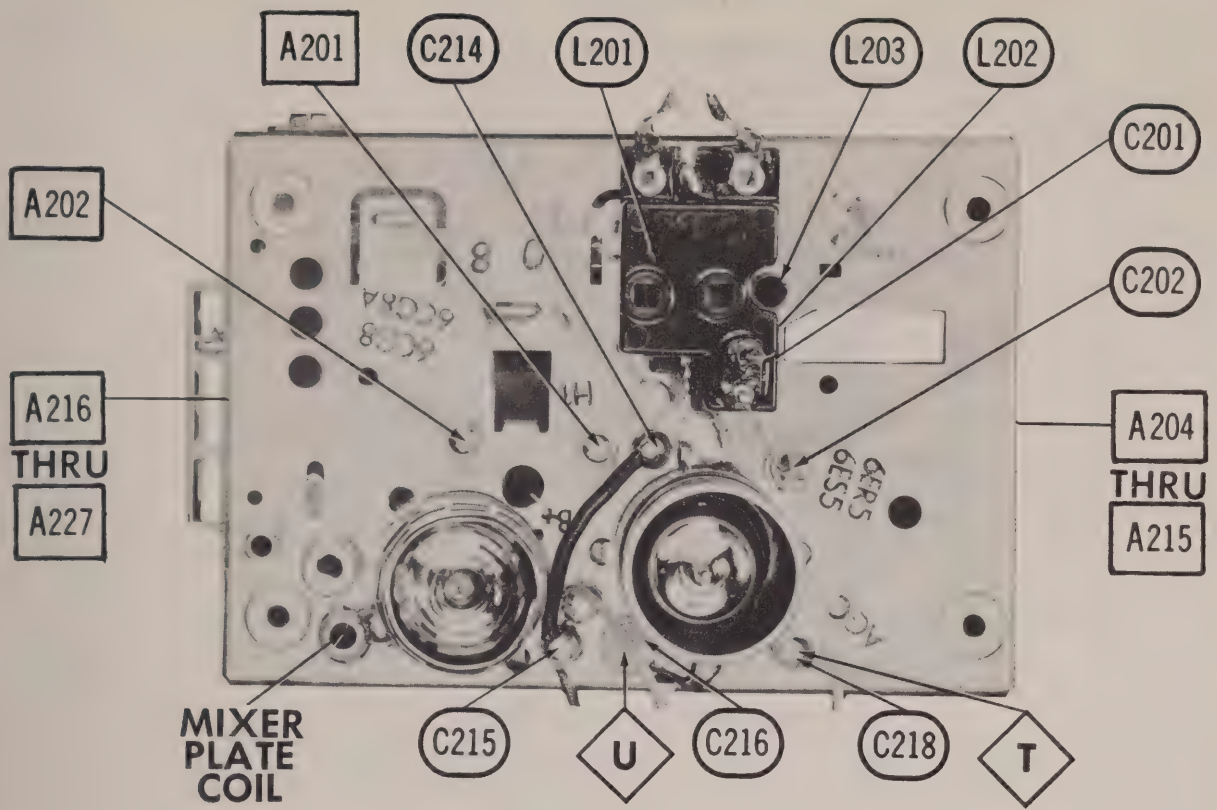
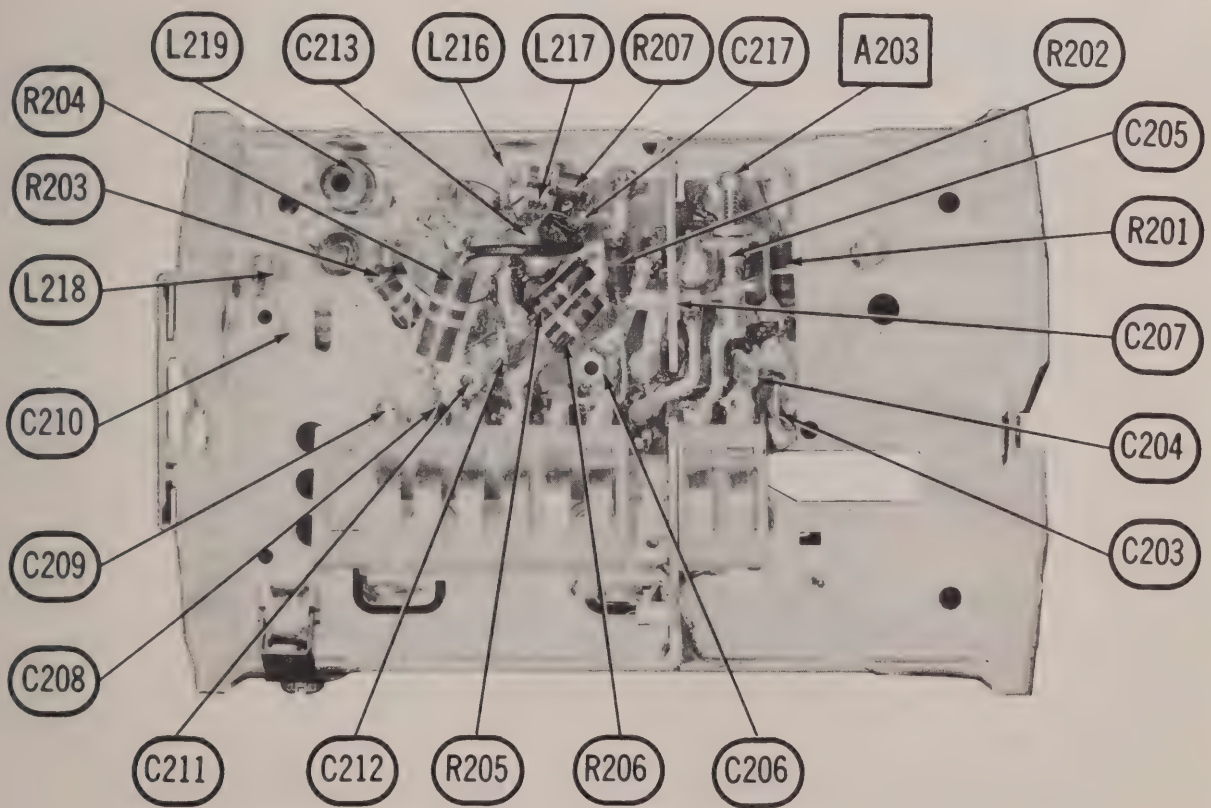
REMOTE CONTROL S-43894



TUNER 175-126 - TOP VIEW



TUNER 175-126 - BOTTOM VIEW

TUNER PARTS LIST AND DESCRIPTIONS

175-124, 175-126

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6ES5/GG	6ER5 *
V202	Mixer-Osc.	6CG8A	

* Alternate.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		N3300 7.5%	22-3060						
C202	30		+7 -3.5%	22-3111						
C203	28		10%	22-2920						
C204	24		10%	22-3146						
C205	1-4.5			22-3148		829-4		CT-551		
C206	1-4.5			22-3009		829-4		CT-551		
C207	75		5%	22-3147						
C208	18		N220 10%	22-3025						
C209	7.5		N150 ±.25mmf	22-3026						
C210	1000			22-3058	BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C211	1-4.5			22-3009		829-4		CT-551		
C212	47		10%	22-2915						
C213	1000			22-2959	BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C214	1000			22-2912	EF-001	MFT-1000			503C-D1	
C215	1000			22-2912	EF-001	MFT-1000			503C-D1	
C216	40			22-3112						
C217	1000			22-2912	EF-001	MFT-1000			503C-D1	
C218	1000			22-2912	EF-001	MFT-1000			503C-D1	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R201	120K			
R202	1000Ω			
R203	3900Ω			
R204	15K	1	63-3179	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R205	2700Ω			
R206	220K			
R207	33K			

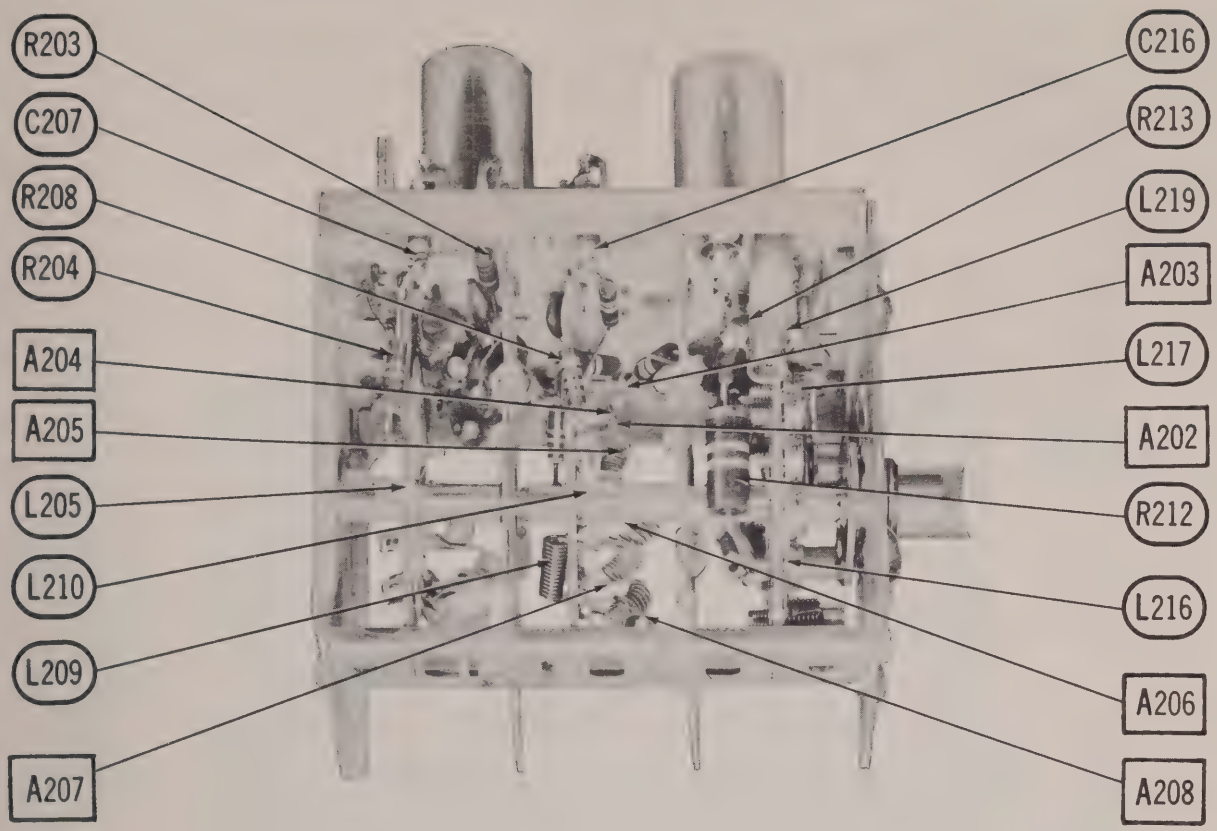
COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L201	Ant. Trans. Assy.	S-41511	
L202	RF Choke	20-657	
L203	IF Trap Coil	S-40497	
L204	Ant., RF, Mixer Grid & Osc. Coils	174-2	Channel 2
L205	"	174-3	Channel 3
L206	"	174-4	Channel 4
L207	"	174-5	Channel 5
L208	"	174-6	Channel 6
L209	"	174-7	Channel 7

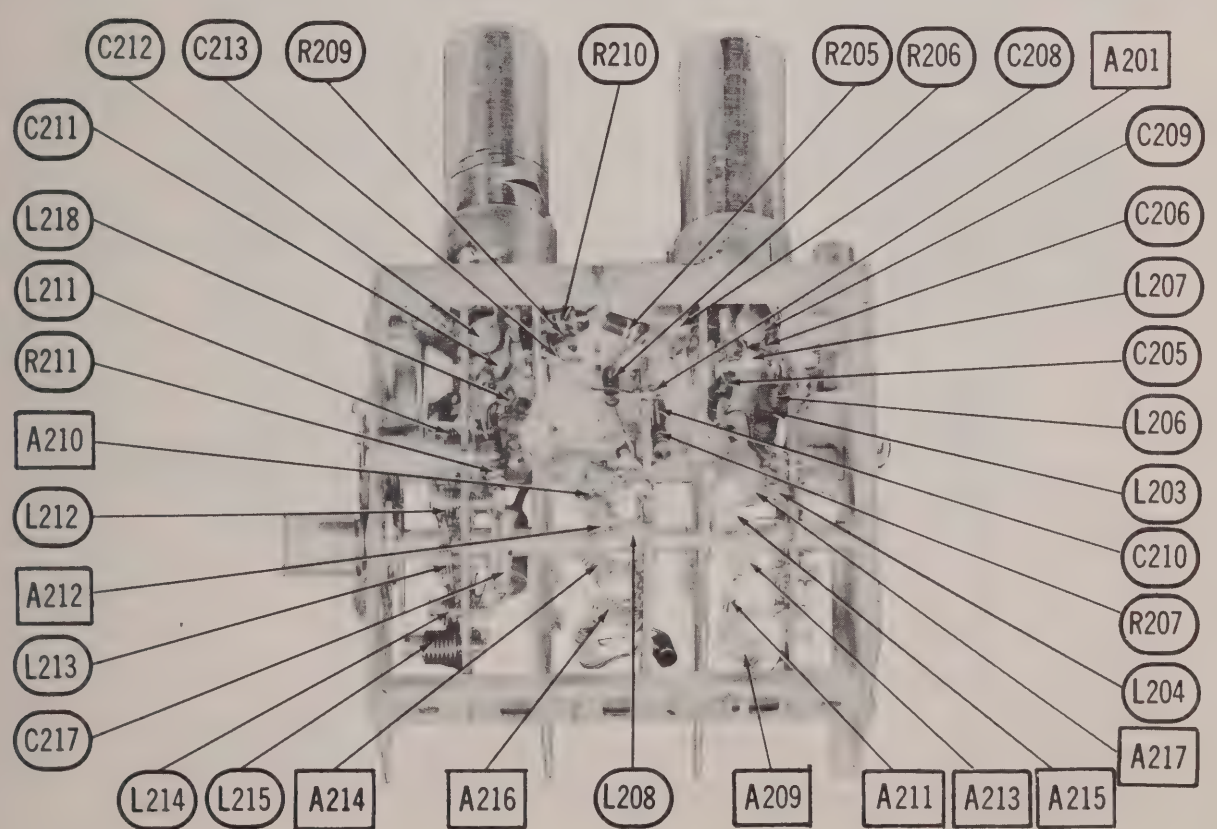
ITEM No.	USE	ZENITH PART No.	NOTES
L210	Ant., RF, Mixer Grid & Osc. Coils	174-8	Channel 8
L211	"	174-9	Channel 9
L212	"	174-10	Channel 10
L213	"	174-11	Channel 11
L214	"	174-12	Channel 12
L215	"	174-13	Channel 13
L216	Fil. Choke	20-734	
L217	RF Choke	20-721	
L218	Fine Tuning	S-43559	
L219	Mixer Plate	S-45638	

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
	Drum Assembly	S-46133	175-126
	Drum Assembly	S-46134	175-124
	Detent Spring	S-42971	Includes roller
	Osc. Slug	149-225	



TUNER 175-102A - LEFT SIDE



TUNER 175-102A - RIGHT SIDE

TUNER PARTS LIST AND DESCRIPTIONS

175-102A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BK7B	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6U8A	6EA8 *

* Alternate.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	12		2.5%	22-2679		TCZ-12			5TCC-Q12S 2.5% *	
C202	18	1000	5%	22-2680			C10Q18C	CNO-418	5GA-Q18S 5% *	
C203	18	1000	5%	22-2680			C10Q18C	CNO-418	5GA-Q18S 5% *	
C204	12		2.5%	22-2679		TCZ-12			5TCC-Q12S 2.5% *	
C205	8.2		NPO 5%	22-2681	NPO-DI 8.2		C10V82C			
C206	1.8			22-2428					5TCCB-V18S	
C207	1000			22-2889	EF-001	MFT-1000			503C-D1	
C208	1000			22-2889	EF-001	MFT-1000			503C-D1	
C209	800			22-2331	BPD-0008	DD-801	L10T8	B-382	5GA-T8	
C210	25		N750 10%	22-2671	N750-DI 25	DTN-25	C10Q25U		5TCU-Q25	
C211	5		N330 5%	22-2716						
C212	5		N330 5%	22-2716						
C213	1			22-2720		TCZ-1		CNO-510	5TCCB-V1	
C214	1000			22-2889	EF-001	MFT-1000			503C-D1	
C215	1000			22-2889	EF-001	MFT-1000			503C-D1	
C216	1000			22-2889	EF-001	MFT-1000			503C-D1	
C217	1.0		N1500 ±.1mmf	22-2714						

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

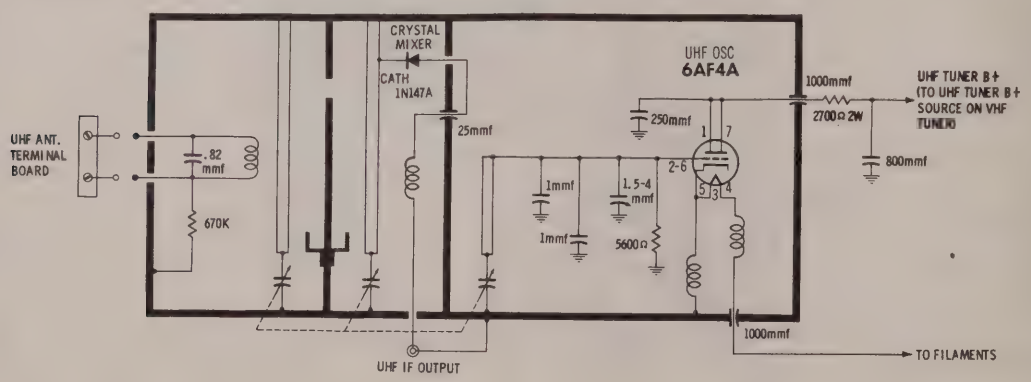
ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R201	230K			
R202	230K			
R203	2.2meg			
R204	22K			
R205	120K			
R206	100K			
R207	33K			

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R208	1200Ω			
R209	100K			
R210	10K			
R211	4700Ω			
R212	10K	2	63-3176	
R213	68K			

COILS (RF-IF)

ITEM No.	USE	ZENITH PART No.	NOTES
L201	Ant. Coil	20-567	
L202	Ant. Coil	20-567	
L203	Ant. Trans.	S-24644	Alternate Part #S-24645
L204	Ant. Coils	20-678	Channels 2-6
L205	Ant. Coils	S-43341	Channels 7-12 Includes wafer assembly
L206	Ant. Coil	20-600	Channel 13
L207	RF Choke	20-633	
L208	RF Coils	20-744	Channels 2-5
L209	RF Coil	20-579	Channel 6

ITEM No.	USE	ZENITH PART No.	NOTES
L210	RF Coils	S-23640	Channels 7-13
L211	Osc. Coil	20-662	Channel 2
L212	Osc. Coil	20-662	Channel 4
L213	Osc. Coil	20-663	Channel 3
L214	Osc. Coil	20-665	Channel 5
L215	Osc. Coil	20-666	Channel 6
L216	Osc. Coils	S-41807	Channels 7-12 Includes wafer assembly
L217	Osc. Coil	20-667	Channel 13
L218	RF Choke	20-632	
L219	Mixer Plate Coil	S-43490	



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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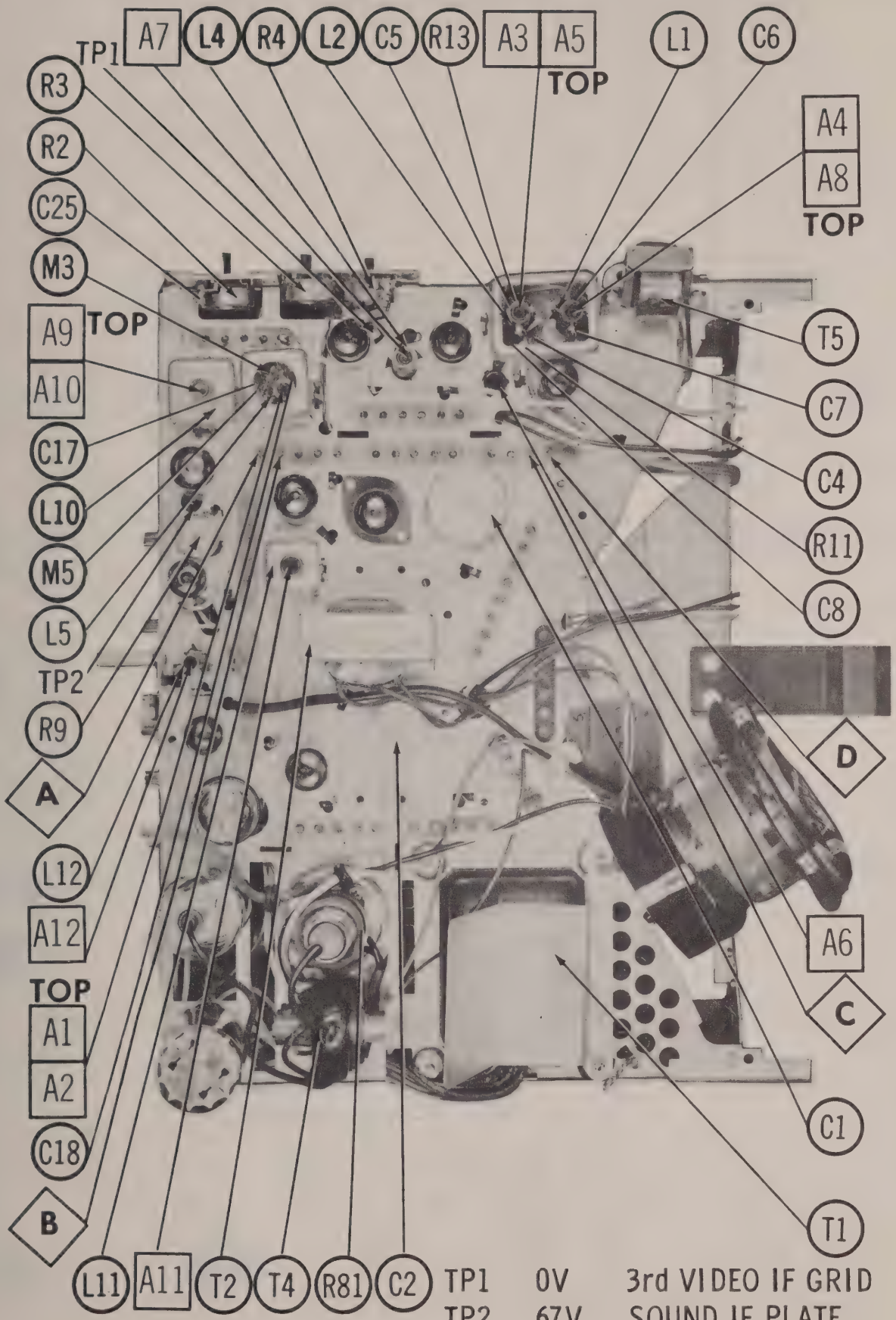
UHF TUNER 175-8



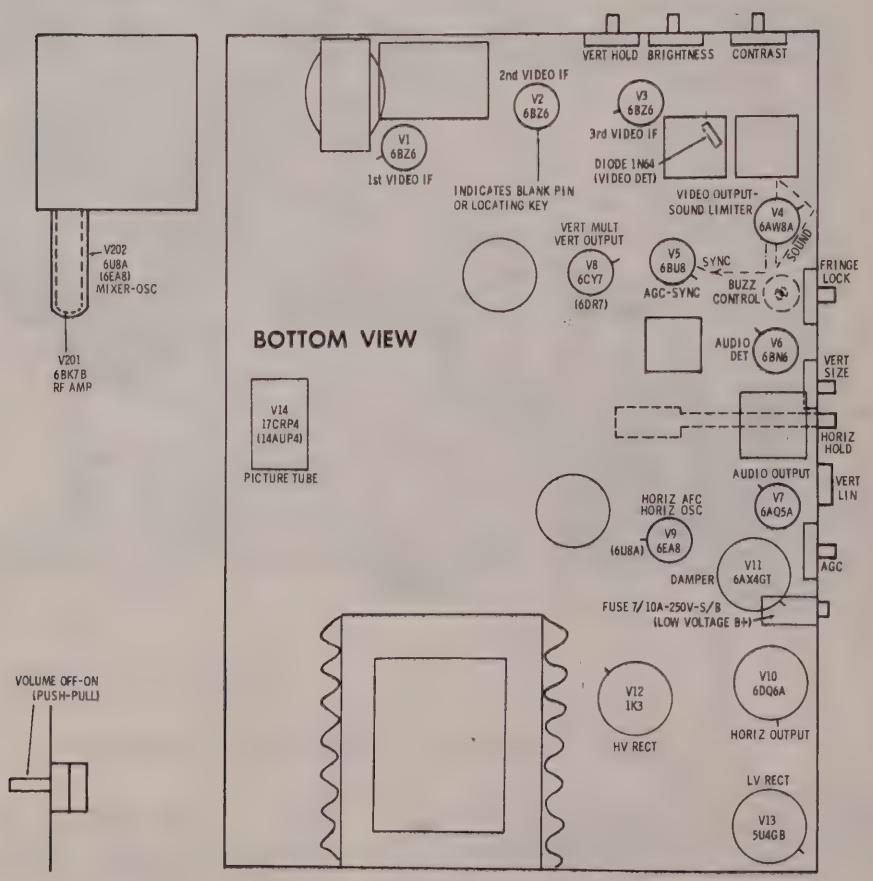
CHASSIS-TOP VIEW

RESISTANCE MEASUREMENTS

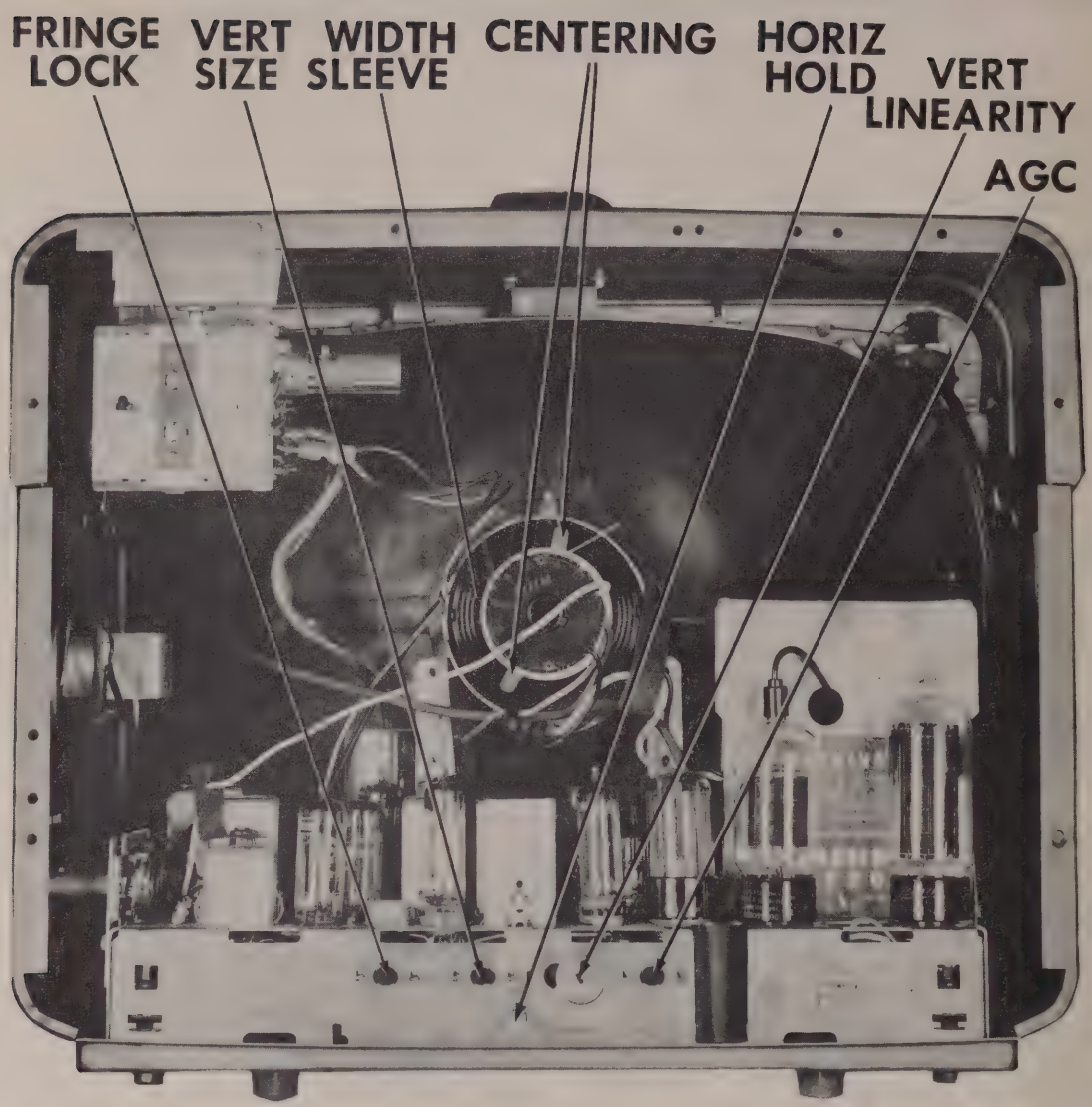
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	1.4meg	1500Ω	.1Ω	0Ω	▲ 220Ω	▲ 220Ω	1500Ω		
V2	6BZ6	57K	▲ 27Ω	.1Ω	0Ω	†220Ω	†220Ω	INF		
V3	6BZ6	.1Ω	120Ω	0Ω	.1Ω	†4700Ω	†4700Ω	0Ω		
V4	6AW8A	0Ω	100K	†32K	0Ω	.1Ω	47Ω	4700Ω	†33K	†9000Ω
V5	6BU8	0Ω	†14K	650K	0Ω	.1Ω	● 1.4meg	● 1.5meg	†40K	6.8meg
V6	6BN6	● 230Ω	.4Ω	0Ω	.1Ω	†22K	†3.7Ω	†390K		
V7	6AQ5A	0Ω	680Ω	.1Ω	0Ω	†1600Ω	†1000Ω	0Ω		
V8	6CY7	†455Ω	2.2meg	2.2meg	0Ω	.1Ω	● ‡8meg	● 450K	0Ω	●1200Ω
V9	6EA8	†68K	100K	†47K	0Ω	.1Ω	‡120K	25Ω	0Ω	1.4meg
V10	6DQ6A	TP	.1Ω	TP	†15K	800K	TP	0Ω	0Ω	TOP CAP ‡12Ω
V11	6AX4GT	NC	NC	INF	NC	†0Ω	NC	.1Ω	0Ω	
V12	1K3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡250Ω
V13	5U4GB	NC	¶	TP	31Ω	NC	27Ω	NC	¶	
V14	17CRP4	0Ω	0Ω	Pin 6 0Ω	Pin 10 †50K	Pin 11 ● 190K	Pin 12 .1Ω			
V201	6BK7B	†1200Ω	60K	INF	0Ω	.1Ω	INF	1.2meg	0Ω	0Ω
V202	6U8A	†10K	100K	†68K	0Ω	.1Ω	†3Ω	0Ω	0Ω	10K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 250V SOURCE.
‡ MEASURED FROM PIN 3 OF V11.
▲ MEASURED FROM PIN 7 OF V2.

NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the Brightness and Contrast controls for a normal picture.

Turn the Horizontal Hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.

Turn the Horizontal Hold slowly counterclockwise until the picture just falls into sync.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

PRODUCTION CHANGE BULLETIN 222

SUPPEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 399

Philco Chassis 8L41, B, BU, 8L41U, 8L42, U, 8L43, U, 8P51, A, U were covered in PHOTOFACT Folder 2 – Set 399.

Late in production new models and late production changes were added.

The following is a complete list of all models and the chassis used in each.

MODEL	CHASSIS	MODEL	CHASSIS
F4210, E, L	8L41	UF4210, E, L	8L41U
F4210X	8L41B	UF4210X	8L41BU
F4212, L	8L41	UF4212, L	8L41U
F4618, L	8L41	UF4618, L	8L41U
F4620, SL, SM	8L41	UF4620, SL, SM	8L41U
F4621S, SL	8L43	UF4621S, SL	8L43U
F4622, L	8L43	UF4622, L	8L43U
F4624	8L43	UF4624	8L43U
L4625S, SL	8L43	UF4625S, SL	8L43U
F4628, L	8L41	UF4628, L	8L41U
F4630L	8L43	UF4630L	8L43U
F4632	8L43	UF4632	8L43U
F4634, L	8L43	UF4634, L	8L43U
F4636, L	8L43	UF4636, L	8L43U
F6206SL, SM	8P51 (Code 051)	UF6206SL, SM	8P51U (Code 051U)
F6206SL, SM	8P51A(Code 051)	UF6206SL, SM	8P51AU (Code 051U)
F6620SL, SM	8P51 (Code 051)	UF6620SL, SM	8P51U (Code 051U)
F6620SL, SM	8P51A (Code 051)	UF6620SL, SM	8P51AU (Code 051U)

TUNER IDENTIFICATION

Two tuners (UT-26C and UT-26A) are used in the 8L41 Series.

When the UT-26C is installed in the 8L41U chassis, the chassis then becomes 8L41CU.

Models UC4210X-41, UC4618-41 and UC4622-41 use Ch. 8L41CU.

TUNER DIFFERENCES

Tuner UT-26C has plate and filament leads wired directly into the VHF Tuner, and does not have a pilot light.

Tuner UT-26A is equipped with a power plug.

Ch. 8L41, U, 8L43, U (Run 9)

ADDITIONAL HEIGHT AND IMPROVED VERTICAL RANGE

R3 (Vert. Hold) is increased from 20K to 40K.

R3 (Vert. Hold) is changed to Part #33-5593-16.

R48 is decreased from 27K ½ watt to 20K ½ watt 5%.

R62 is decreased from 7000Ω 4 watt to 4500Ω 4 watt.

R64 is decreased from 39K 2 watt to 24K 4 watt.

CHASSIS 8L41, B, BU, CU, U, 8L43, U, 8P51, A (Code 051) 8P51AU, U (Code 051U)

PRODUCTION CHANGE BULLETIN 222

PRODUCTION CHANGE BULLETIN 222

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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SET 448 FOLDER 3

Run 10	ELIMINATING A. C. A DRIFT IF panel is changed to Run 2 coded with a red dot. C3 is omitted.
Run 11	IMPROVED VERTICAL SWEEP R5A and R5B (Vert. Linearity and Height) is changed to Part #33-5592-23. R5B (Height) is increased from 2.5meg to 4.4meg. The Main Panel is changed to Run 6 coded with a blue dot.
Run 12	TO REDUCE VERTICAL DRIFT The Main Panel is changed to Run 7 coded with a violet dot. In later production the Main Panel was changed to Run 8 coded with a gray dot, with no change in chassis or run number.
Run 13	IMPROVED CHASSIS WIRING The Main Panel is changed to Run 9 coded with a white dot. A 1000mmf disc capacitor is added from pin 6 of V4A (Video Output) to ground, replacing C23 removed in Main Panel, Run 9. VHF Tuner T-68B is replaced by VHF Tuner T-68B-1 (Part #76-10518).
Ch. 8L42, U (Run 6)	ADDITIONAL HEIGHT AND IMPROVED VERTICAL RANGE R3 (Vert. Hold) is increased from 20K to 40K. R3 (Vert. Hold) is changed to Part #33-5593-16. R48 is decreased from 27K $\frac{1}{2}$ watt to 20K $\frac{1}{2}$ watt 5%. R62 is decreased from 7000Ω 4 watt to 4500Ω 4 watt. R64 is decreased from 39K 2 watt to 24K 4 watt.
Run 7	ELIMINATING A. C. A. DRIFT IF Panel is changed to Run 2 coded with a red dot. C3 is omitted.
Run 8	TO REDUCE VERTICAL DRIFT The Main Panel is changed to Run 7 coded with a violet dot. In later production the Main Panel was changed to Run 8 coded with a gray dot, with no change in chassis, or run number.
Ch. 8P51, U (Run 4)	COMPONENT CHANGE T4 (Horiz. Output) is changed to Part #32-8810-3.
Run 6	ADDITIONAL HEIGHT AND IMPROVED VERTICAL RANGE R3 (Vert. Hold) is increased from 20K to 40K. R3 (Vert. Hold) is changed to Part #33-5593-16. R48 is decreased from 27K $\frac{1}{2}$ watt to 20K $\frac{1}{2}$ watt 5%. R62 is decreased from 7000Ω 4 watt to 4500Ω 4 watt. R64 is decreased from 39K 2 watt to 24K 4 watt.
Run 7	ELIMINATING A. C. A. DRIFT IF Panel is changed to Run 2 coded with a red dot. C3 is omitted.
Run 8	TO REDUCE VERTICAL DRIFT The Main Panel is changed to Run 7 coded with a violet dot. In later production the Main Panel was changed to Run 8 coded with a gray dot, with no change in chassis or run number.

Run 9	IMPROVED CHASSIS WIRING The Main Panel is changed to Run 9 coded with a white dot. A 1000mmf disc capacitor is added from pin 6 of V4A (Video Output) to ground, to replace C23 removed in Main Panel (Run 9). VHF Tuner T-68B is replaced by VHF Tuner T-68B-1 (Part #76-10518).
Ch. 8P51A Run 3	ADDITIONAL HEIGHT AND IMPROVED VERTICAL RANGE R3 (Vert. Hold) is increased from 20K to 40K. R3 (Vert. Hold) is changed to Part #33-5593-16. R48 is decreased from 27K $\frac{1}{4}$ watt to 20K $\frac{1}{2}$ watt 5%. R62 is decreased from 7000Ω 4 watt to 4500Ω 4 watt. R64 is decreased from 39K 2 watt to 24K 4 watt.
Run 4	ELIMINATING A. C. A. DRIFT IF Panel is changed to Run 2 coded with a red dot. C3 is omitted.
Run 5	TO REDUCE VERTICAL DRIFT The Main Panel is changed to Run 7 coded with a violet dot. In later production the Main Panel was changed to Run 8 coded with a gray dot, with no change in chassis or run number.
Run 6	MAIN PANEL PRINTED WIRING ASSEMBLY The Main Panel is coded with a blue dot. R46 is decreased from 1.8meg to 130K 5%.
Run 7	The Main Panel is coded with a violet dot and the part number is changed to 54-5278-2. K3 (Vert. Feedback) is changed to Part #30-6514-1. With this change a .001mfd @ 1000V molded capacitor is added in series with K3 and pin 1 of V8B (6SC7). L17 (Discriminator) is changed to Part #32-4735. K1 (Audio Network) is changed to Part #30-6505-2. R24 is increased from 120K to 150K. R35 is omitted.
Run 8	COMPONENT CHANGE R46 is omitted and is replaced by a jumper wire.
Run 9	COMPONENT CHANGE C23 is omitted.
Run 2	COMPONENT CHANGE C4 is changed to 3.3mmf NPO.
RC-30 (Run 2)	REMOTE CONTROL ASSEMBLY The resistor in series with the center terminal of the Volume control and pin 7 of the Remote Control socket is increased to 33K.
Ch. 8P51 (Code 051)	PICTURE TUBE CONVERSION Models F-6206 (Code 051), UF-6206 (Code 051U), F-6620 (Code 051), and UF-6620 (Code 051U) use the 24ANP4 electrostatically focused picture tube. When any electrostatically focused picture tube is used, the magnetic focus and centering assembly is removed and the following changes are made. A Focus Link (Part #28-12162-1) is added. A Centering Assembly (Part #76-11069-2) is added. An Ion Trap (Part #76-6077-2) is added.

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER

ADMIRAL MODELS 521, 528 (Ch. 6T2)

ADMIRAL MODELS 521, 528 (Ch. 6T2)

MODEL 521

TRADE NAME	Admiral Models 521, 528 (Ch. 6T2)
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	12 Volts DC
TUNING RANGE—BROADCAST	535-1600KC
RATING	8.5MA @ 12 Volts DC (No Signal, Min. Volume) 10MA @ 12 Volts DC (Signal, Normal Volume)

ADMIRAL MODELS 521, 528 (Ch. 6T2)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3 . . . GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531
A4, A5 . . . . . GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6 . . . . . GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	"	"	A4	"
3.		"	1400KC	Tune to 1400KC signal	"	A5	Adjust for maximum output. Repeat steps 2 and 3.
4.		"	600KC	Tune to 600KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

DISASSEMBLY

1. Remove tuning and volume knobs by pulling off.
2. Open rear cover of cabinet by pulling on top rear.
3. Remove battery case from two spring clamps.
4. Loosen 2 phillips head screws from front of cabinet near tuning shaft.
5. Loosen hex nut holding volume control to cabinet.
6. Hold printed board and remove screws and nut previously loosened.
7. Remove printed board from cabinet.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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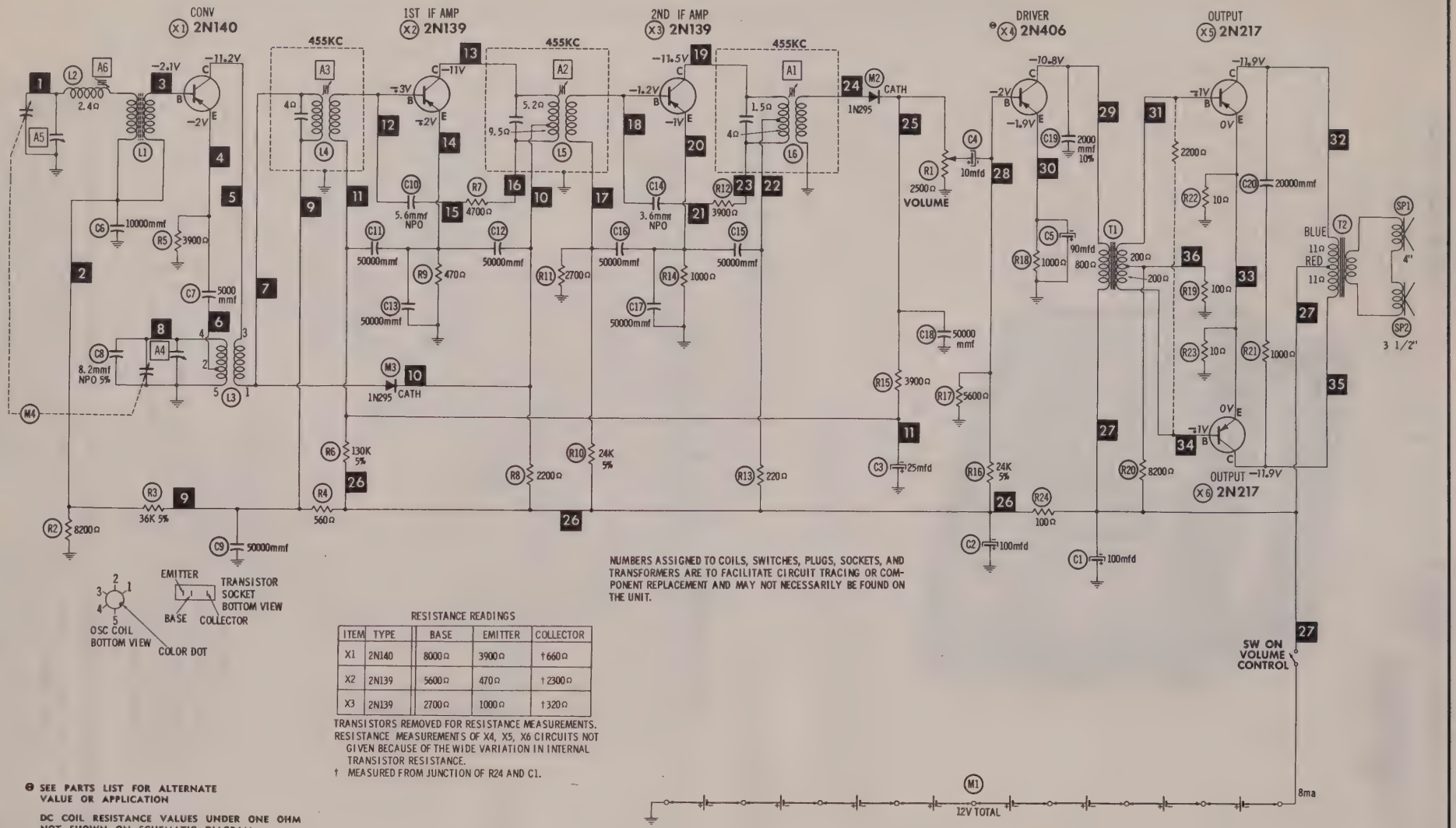
SET 448 FOLDER 4



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N140	8000Ω	3900Ω	†660Ω
X2	2N139	5600Ω	470Ω	†2300Ω
X3	2N139	2700Ω	1000Ω	†320Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS. RESISTANCE MEASUREMENTS OF X4, X5, X6 CIRCUITS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

† MEASURED FROM JUNCTION OF R24 AND C1.

Ⓔ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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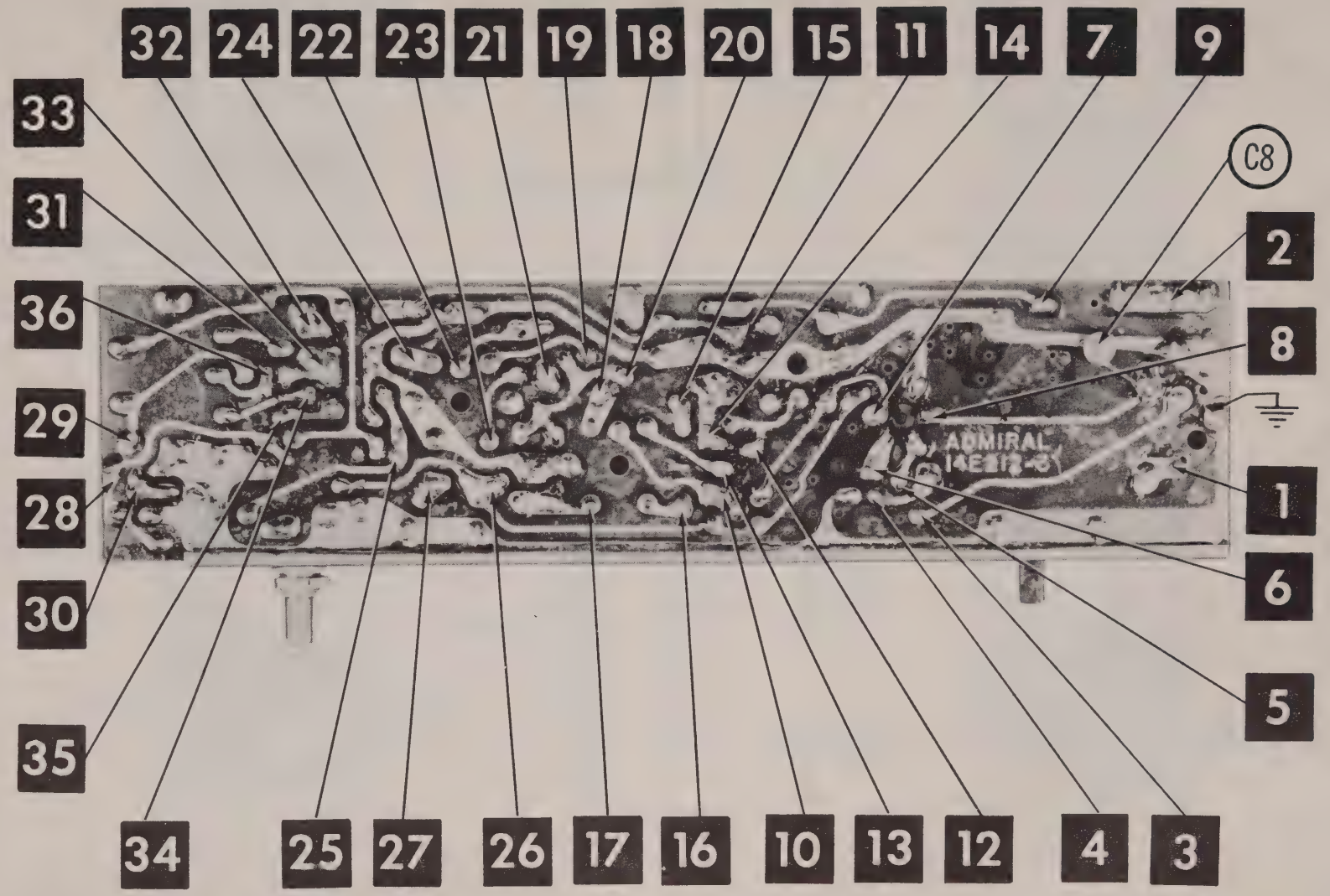
ADMIRAL MODELS 521, 528 (Ch. 6T2)

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	530Ω CT	6-8Ω	Part of SP1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	QUAM PART No.	
SP1	4"	PM	4-6Ω	78C145-2 ①	4A1Z4.5	① Includes T2
SP2	3½"	PM	2-4Ω	78B144-1	3A07	

BATTERIES

ITEM No.	VOLTAGE	ADMIRAL PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	12V			1 ①		935 ①		M-14R①	① 8 used.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ADMIRAL PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N295	1N295	1N60	1N295	Detector (Pigtail)
M3	1N295	1N295	1N60	1N295	AVC Rectifier (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Tuning Cap. Printed Board	68B66-3 14E212-3	2 Gang (Ant. 273.3mmf max., Osc. 102.1mmf max.)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	33C279-5	Tuning, Includes Compression Ring
Knob	33B278-1	Volume On-Off, Includes Compression Ring
Cabinet	34E133-1	Less Handle, Escutcheon and Grille, Model 521
Cabinet	34E133-2	Less Handle, Escutcheon and Grille, Model 528
Handle Half	33D234-2	Tongue
Handle Half	33D234-4	Groove
Antenna Case	A5834-2	Includes Eyelet
Antenna Cover	33D234-6	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N140	Converter		2N140	2N486	2N140	PNP
X2	2N139	1st IF Amp.		2N139	2N483	2N139	PNP
X3	2N139	2nd IF Amp.		2N139	2N48	2N139	PNP
X4	2N406*	Driver		2N406	2N362	2N406	PNP
X5	2N217	Output		2N217	2N361	2N417	PNP Matched
X6	2N217	Output		2N217	2N361	2N417	PNP

* Some versions may use 2N217 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	12	67B32-6	BCD10100	ECPA317	PET1500	ML100-15	VL-1140	
C2	100	12	67B32-6	BCD10100	ECPA317	PET1500	ML100-15	VL-1140	
C3	25	3	67B22-13	SRE3V25	ECPA11	PET130	ML25-3	VL-1041	
C4	10	3	67B35-6	PWE3010	NL10-3	TT3X10	ML10-6	TE-1053	
C5	90	3	67B32-10	SRE3V100	ECPA17	TT3X110	ML100-3	VL-1051	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	10000			65D10-41	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	5000			65D10-152	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C8	8.2		NPO 5%	65D10-131			C10V82C			
C9	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C10	5.6		NPO	65D6-136						
C11	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C12	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C13	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C14	3.6		NPO	65D6-135						
C15	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C16	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C17	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C18	50000			65B45-6	BPD-05	DF-503		TA-150	5HK-S5	
C19	2000		10%	65D10-125	BPD-002	DD-202		B-220	5HK-D2	
C20	20000			65D10-37	BPD-02	DD-203		B-120	5HK-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2500Ω	½	75C25-9					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R2	8200Ω		60B8-822	
R3	36K 5%		60B7-363	
R4	560Ω		60B8-561	
R5	3900Ω		60B8-392	
R6	130K 5%		60B7-134	
R7	4700Ω		60B8-472	
R8	2200Ω		60B8-222	
R9	470Ω		60B8-471	
R10	24K 5%		60B7-243	
R11	2700Ω		60B8-272	
R12	3900Ω		60B8-392	
R13	220Ω		60B8-221	

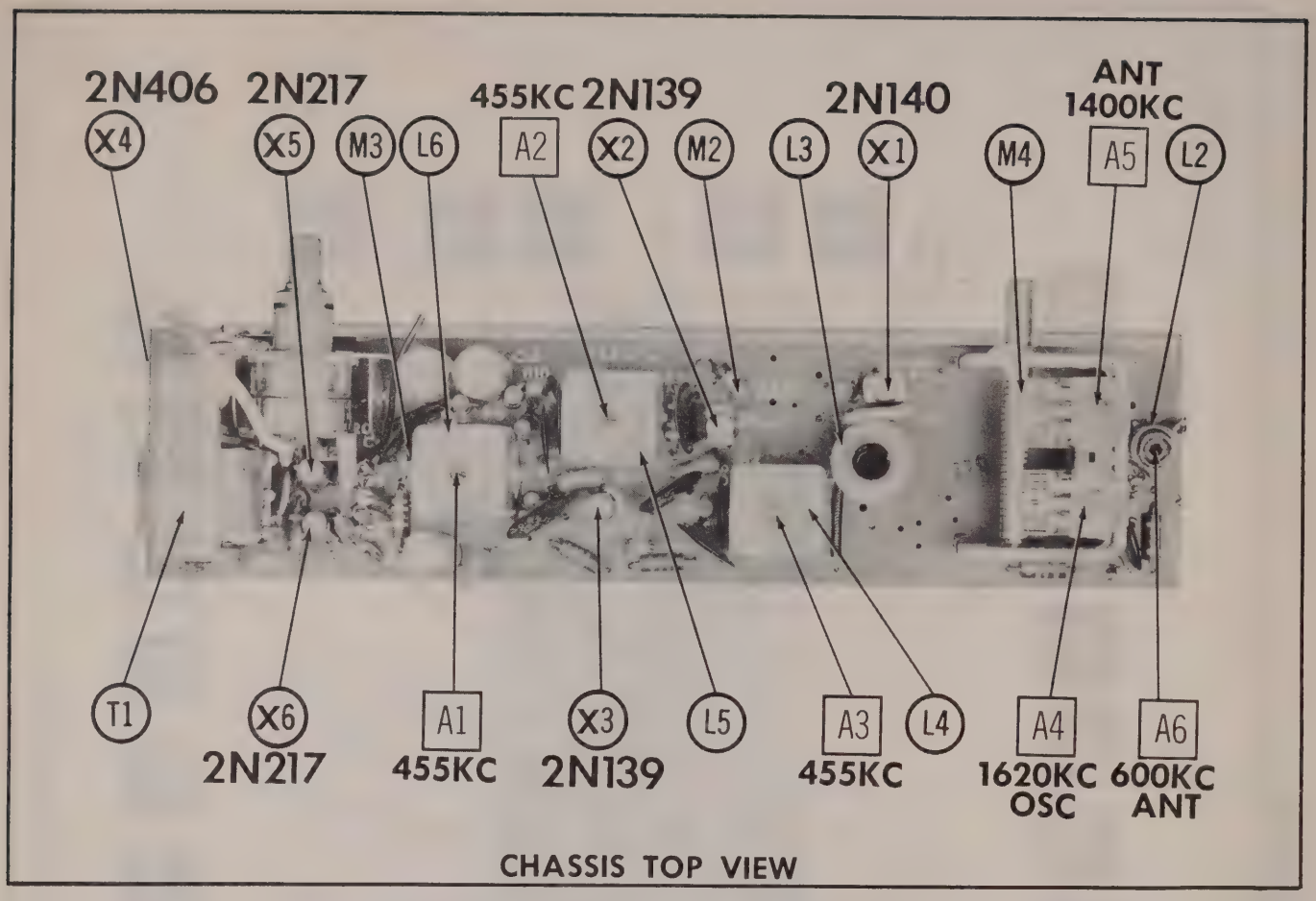
ITEM No.	RATING		ADMIRAL PART No.	NOTES
	OHMS	WATT		
R14	1000Ω		60B8-102	
R15	3900Ω		60B8-392	
R16	24K 5%		60B7-243	
R17	5600Ω		60B8-562	
R18	1000Ω		60B8-102	
R19	100Ω		60B8-101	
R20	8200Ω		60B8-822	
R21	1000Ω		60B8-102	
R22	10Ω		60B8-100	
R23	10Ω		60B8-100	
R24	100Ω		60B8-101	

COILS (RF-IF)

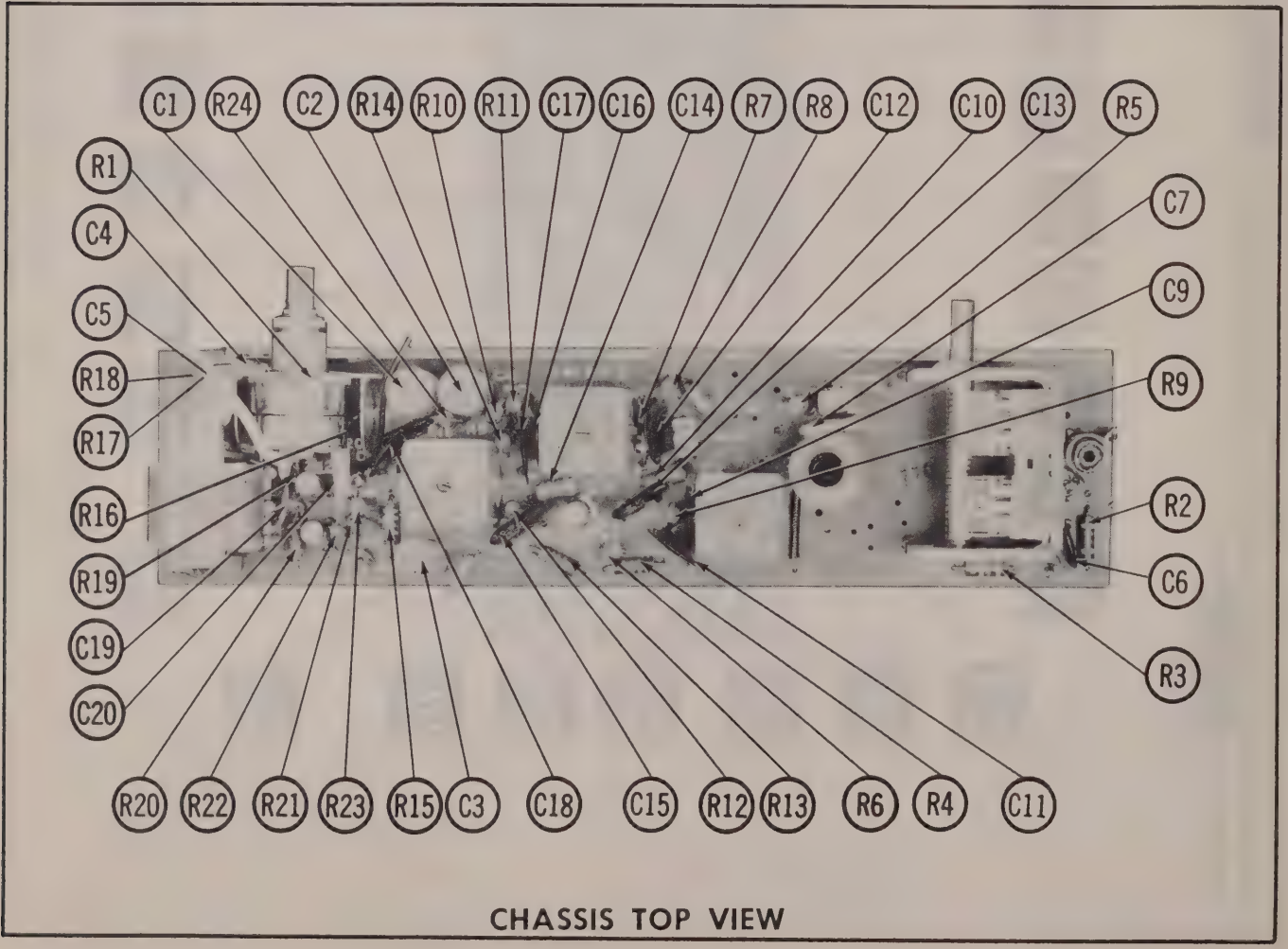
ITEM No.	USE	REPLACEMENT DATA						NOTES
		ADMIRAL PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	69B225-3						
L2	Ant. Coil	69B224-1						
L3	Osc. Coil	69B223-2						
L4	1st IF Trans.	72C190-4						
L5	2nd IF Trans.	72C190-5						
L6	3rd IF Trans.	72C190-6						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.2 :	1	79B76-1						



CHASSIS TOP VIEW



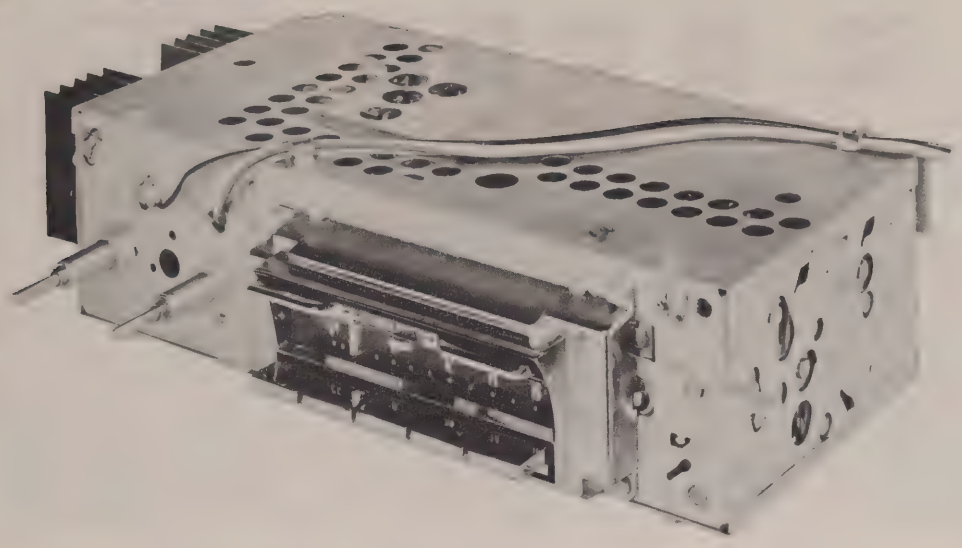
CHASSIS TOP VIEW

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

CADILLAC MODEL 7272505

CADILLAC MODEL 7272505



TRADE NAME	Cadillac Model 7272505 (For 1959 Cadillac Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Transistorized Output
TUBES	Five
POWER SUPPLY	12 Volt Storage Battery — RATING 3 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1615KC — (11 Amp. when Tuning)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Set Sensitivity control for maximum sensitivity.
To tune to high frequency stop, put a .070" feeler gauge against the high frequency stop. Depress station selector bar and allow treadle arm to run against feeler gauge. Turn the radio off, then on.
Suggested Alignment Tools: A1, A2, A3, A4 ....GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544
A5, A7, A10 ..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525
A6, A7, A8 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262KC (400∿ Mod)	High Freq. end stop	DC probe to point A . Common to chassis.	A1, A2, A3	Adjust for maximum deflection.
2.	"	"	"	"	"	A4	Adjust for MINIMUM deflection.
	Check setting of Osc. Coil core (A5). Rear of core should be 1 5/8" from mounting end of coil form.						
3.	82mmf	High side to antenna receptacle. Low side to chassis.	1615KC	High Freq. end stop	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	"	600KC	Tune to 600KC signal	"	A9, A10	"
5.	"	"	1615KC	Tune to 1615KC signal	"	A7, A8	"
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A8 for maximum output.						
	With radio tuned to a 900KC signal, adjust pointer adjustment so that pointer coincides with 900KC on dial.						

PUSHBUTTON ADJUSTMENT

1. Pull pushbutton to left and out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of J273

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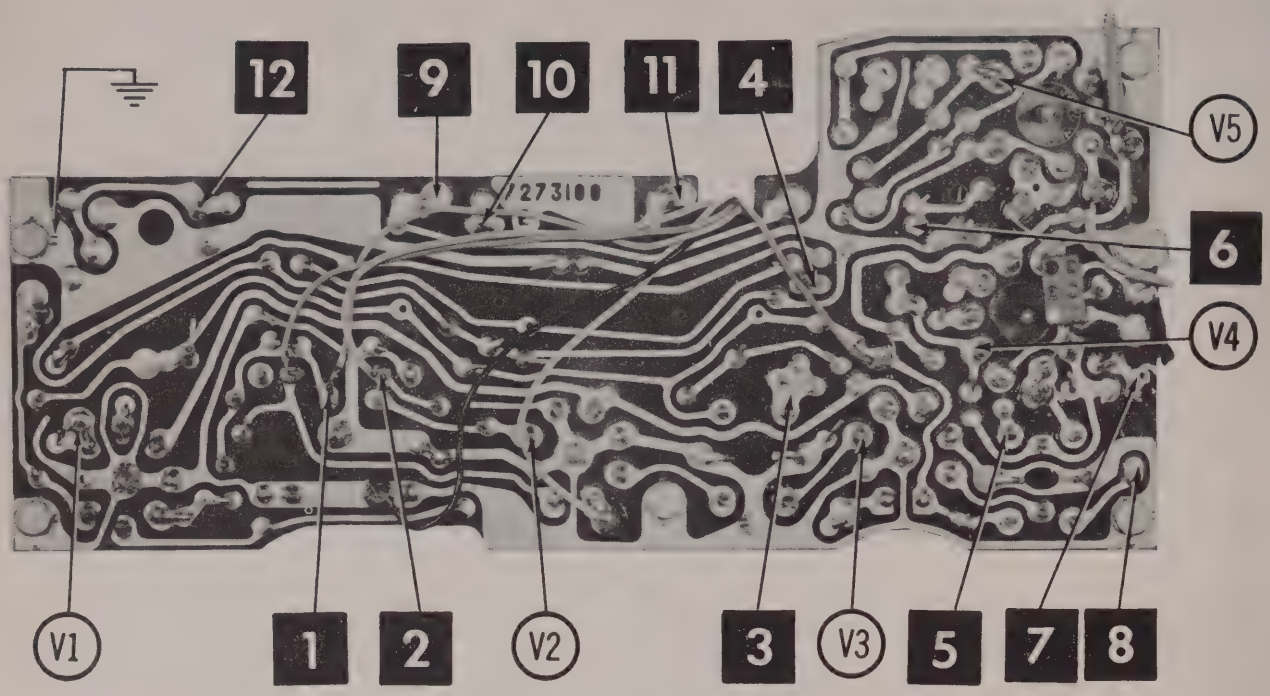
SET 448 FOLDER 5



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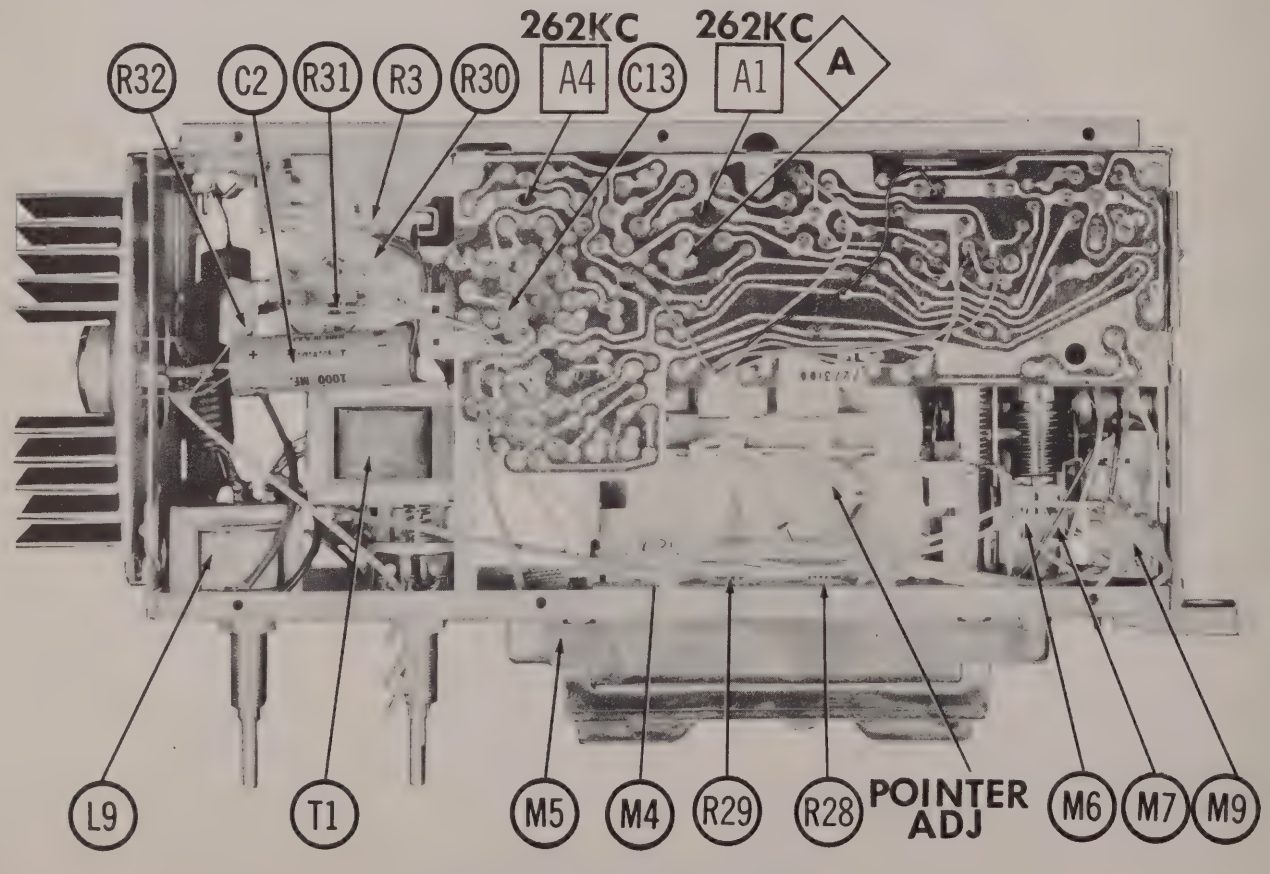
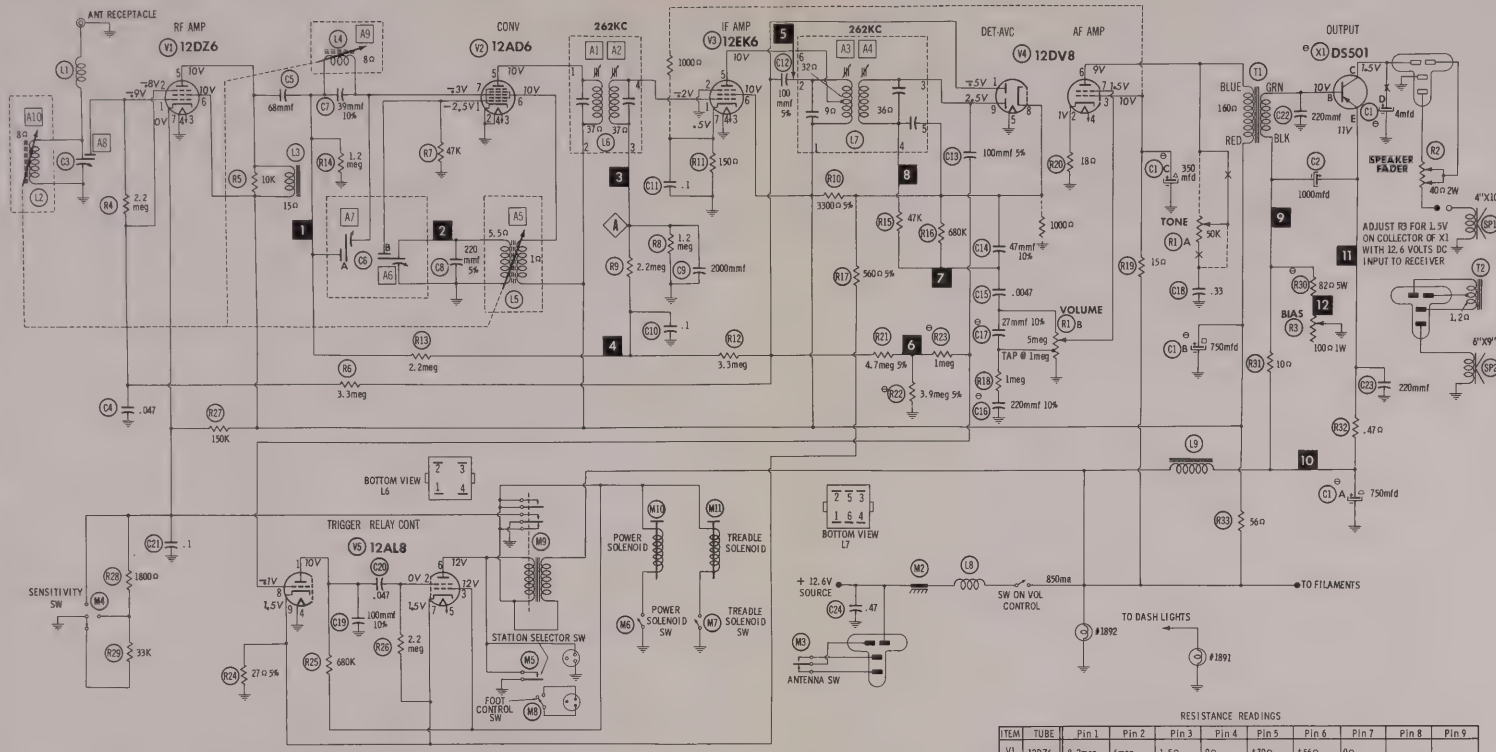
PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



CHASSIS-BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DZ6	8.2meg	6meg	1.5Ω	0Ω	†70Ω	†56Ω	0Ω		
V2	12AD6	47K	0Ω	1.5Ω	0Ω	†95Ω	†57Ω	1meg		
V3	12EK6	1meg	0Ω	1.5Ω	0Ω	†65Ω	†56Ω	150Ω		
V4	12DV8	3meg	18Ω	†15Ω	1.5Ω	0Ω	†215Ω	0Ω	990Ω	725K
V5	12AL8	†680K	2.2meg	†.6Ω	0Ω	1.5Ω	†200Ω	27Ω	3.5meg	27Ω

RESISTANCE MEASUREMENTS OF X1 CIRCUIT NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCES.
† MEASURED FROM JUNCTION OF R19 AND R33.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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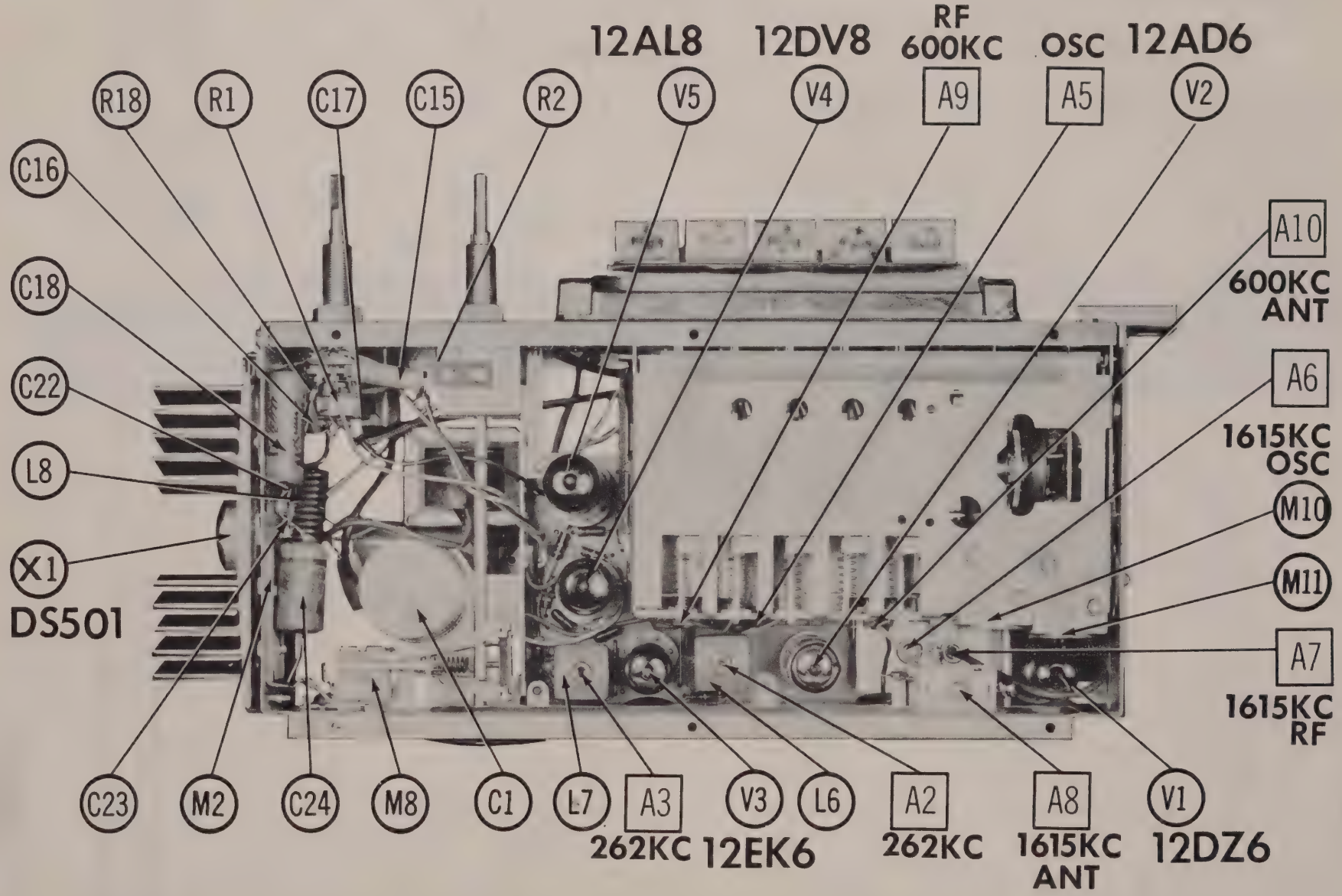
CADILLAC MODEL 7272505

CADILLAC
MODEL 7272505

PRINTED BOARD

FOLDER 5



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amp.	12DZ6	
V2	Converter	12AD6	
V3	IF Amplifier	12EK6	
V4	Det.-AVC-AF Amp.	12DV8	
V5	Trigger-Relay Control	12AL8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	DS501 *	Output					PNP * Alt. Type 2N278

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲750	16	7273847	AFH4-20-77		WP401.8		TVLS-4205 *	①
B	■750	16							
C	▲350	16							
D	4	11.5AC							
C2	1000	1.0	7271557	PRS6V1000	BBR1000-6	TC110	TD-1000-6	TVA-1104	

① C1D is not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3				7270981						
C4	.047	200		7271670	P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C5	68			6369	DI-68	DD-6 80	L10Q68	CNO-468	5GA-Q68	
C6A				7273693 〉						
B										
C7	39		10%	6366	DI-39	DD-390	L10Q39	CNO-439	5GA-Q39S 10% *	
C8	220		5%	7273511	1469-00022	TCZ-220	5R5T22	B-322	MS-322	
C9	2000			6352	BPD-002	DD-202	BYA10D2	B-220	5HK-D2	
C10	.1	200		6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C11	.1	200		6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C12	100		5%	1219498	1469-0001	TCZ-100	5R5T1	MCE235	MS-310	
C13	100		5%	1219498	1469-0001	TCZ-100	5R5T1	MCE235	MS-310	
C14	47		10%	6367	1469-000047	DD-470	5R5Q47	CNO-447	MS-447	
C15	.0047	200		7271556	P288N-0047	DD-472	WMF2D47E	GTM-2247	6TM-D47	
C16	220		10%		1469-00022	D6-221	5R5T22		MS-322	①
C17	27		10%		1469-000027	DD-270	5R5Q27	CNO-427	MS-427	②
C18	.33	100		7273872	P288N-33		WMF1P33E	GTM-1033	2WF-P33	
C19	100		10%	6371	DI-100	DD-101	L10T1	CNO-310	5GA-T1S 10% *	
C20	.047	100		7272519	P288N-047	DF-503	WMF1S47E	GTM-1147	2TM-S47	
C21	.1	200		7238789	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C22	220			6375	BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C23	220			6375	BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C24	.47	100		6692	P288N-47		WMF1P47E	GTM-1047	2TM-P47	

① Some versions may use 470mmf in this application (Part #7273930).
② Some versions may use a 22mmf in this application (Part #6363).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	50K	1/2	7272976				■ UE4006S	Tone
B	5meg	1/2						Volume, Tap @ 1meg
C	Switch							
R2	40Ω	2(WW)	7270982					Speaker Fader
R3	100Ω	1(WW)	7273650		39-100		FL-100	Bias

■ "STA-LOC" Equivalent: FE54A, RU56T16, OSI375, IS2187, US41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		DELCO PART No.	NOTES
	OHMS	WATT		
R4	2.2meg		1239	
R5	10K		1137	
R6	3.3meg		1241	
R7	47K		1219	
R8	1.2meg		1236	
R9	2.2meg		1239	
R10	3300Ω 5%		1220173	
R11	150Ω			Note 1
R12	3.3meg		1241	
R13	2.2meg		1239	
R14	1.2meg		1236	
R15	47K		1219	
R16	680K		1230	Note 2
R17	560Ω 5%			
R18	1meg			Note 3

ITEM No.	RATING		DELCO PART No.	NOTES
	OHMS	WATT		
R19	15Ω		1103	
R20	18Ω		1104	
R21	4.7meg 5%		7271456	
R22	3.9meg 5%			Note 4
R23	1meg			Note 5
R24	27Ω 5%		7273769	
R25	680K		1233	
R26	2.2meg		1239	
R27	150K		1225	
R28	1800Ω			
R29	33K			
R30	82Ω	5	7273786	Note 6
R31	10Ω		1101	
R32	.47Ω		7270608	Fuse Type
R33	56Ω		1110	

Note 1. Some versions may use a 33Ω in this application (Part #1107).
Note 2. Some versions may use a 390K in this application (Part #1230).
Note 3. Some versions may use a 470K in this application (Part #1231).
Note 4. Some versions may use a 2.7meg in this application (Part #7273857).
Note 5. Some versions may use a 3.3meg in this application (Part #1241).
Note 6. Temperature compensating.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		DELCO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	7255738	19-1004	19-1004	BC-565	4610		
L2	Ant. Coil	1221138						
L3	RF Choke	7269684						1.8MH
L4	RF Coil	1221138						
L5	Osc. Coil	1221151						
L6	Input IF	1221257	16-6756	16-6756	BC-344	13-PH1		
L7	Output IF	1221253						
L8	"A" Lead Choke	1217846						1.4uh

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA							
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L9	.85A	.7Ω	.013 Hy.	7273024				TC-2		

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	13 :	1	7271585						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	9Ω tap ⓐ 3-4Ω		7273026				TA-50①			① Use original channel frame.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DELCO PART No.	QUAM PART No.	
SP1	4"x 10"	PM	3-4Ω	6109	46A15	Front Seat
SP2	6"x 9"	PM		7273195	69A3	Rear Seat

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			DELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		9 Amp. 32V						

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M2	Spark Plate	1221226	
M3	Switch	7271223	Antenna
M4	Switch	7272993	Sensitivity, Includes Station Selector Bar
M5	Switch	7273705	Station Selector Bar
M6	Switch	7268030	Power Solenoid
M7	Switch	7268030	Treadle Solenoid
M8	Switch	7273916	Foot Control (Optional)
M9	Relay	7270545	
M10	Solenoid & Plunger	1221160	Power
M11	Solenoid & Plunger	1221161	Treadle

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1471160	Control
Knob	1471161	Tone, Speaker
Bearing Plate	1220974	Pushbutton, Includes Slides
Pushbutton	7269269	#1
Pushbutton	7269270	#2
Pushbutton	7269271	#3
Pushbutton	7269272	#4
Pushbutton	7269273	#5
Pointer	7272988	
Dial	7273003	Calibrated
Dial Glass	7273006	

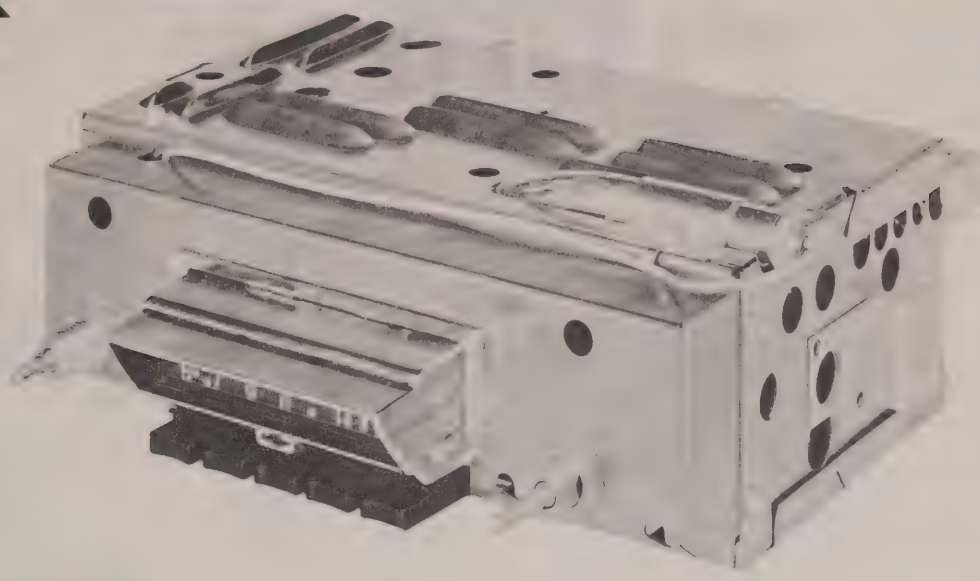
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

PHOTOFACT* Folder with CIRCUITRACE*

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

CHEVROLET MODEL 987891



TRADE NAME	Chevrolet Model 987891 (For 1959 Chevrolet Automobiles)
MANUFACTURER	Delco Radio Div., G. M. Corp., Kokomo, Indiana
TYPE SET	Battery Operated 4 Tube Custom Built AM Automobile Receiver With Transistorized Output
POWER SUPPLY	12 Volt Storage Battery
RATING	1.4 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540 KC-1615 KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A4..... GENERAL CEMENT #8282, 8606, 8606L, 9091
WALSCO #2526, 2541, 2543, 2544

A5, A9, A10..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

A6, A7, A8..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of converter. Low side to chassis.	262KC (400 ∿ Mod.)	High Freq. end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
	Check setting of oscillator coil core (A5). Rear of core should be 1 5/8" from mounting end of coil form.						
2.	82mmf	High side to antenna receptacle. Low side to chassis.	1615KC	"	"	A6, A7, A8	Adjust for maximum output.
3.	"	"	600KC	"	"	A9, A10	Adjust for maximum output.
4.	"	"	1615KC	High Freq. end stop	"	A7, A8	Adjust for maximum output.
5.	Tune Receiver to an 1100KC signal and adjust pointer adjustment so that pointer coincides with 1100KC mark on dial.						
6.	With radio installed in car and antenna fully extended, tune in a weak station near 1000KC and adjust A8 for maximum output.						

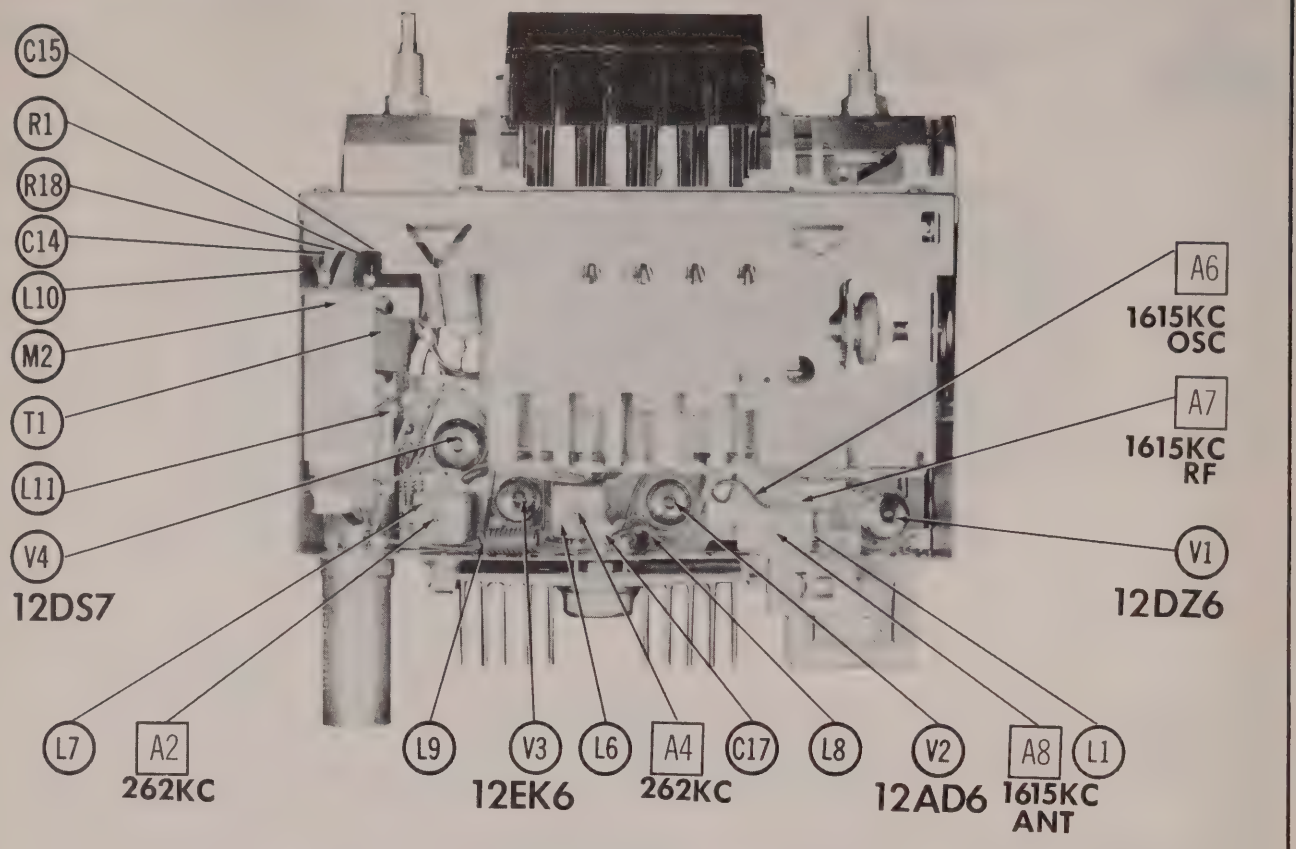
PUSHBUTTON ADJUSTMENT

1. Pull pushbutton to the left and out.
2. Tune manually to desired station.
3. Press pushbutton in firmly.
4. Repeat for remaining pushbuttons.

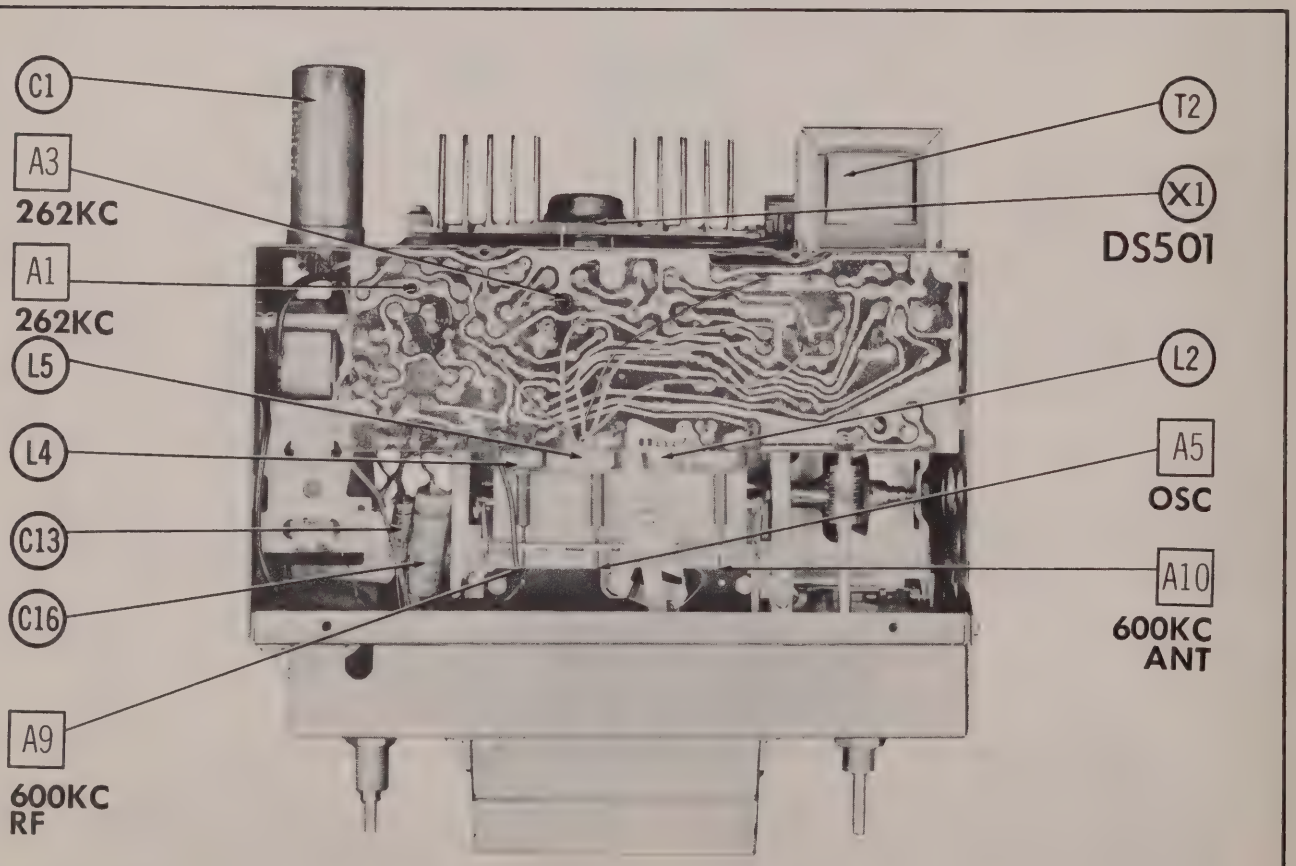
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

CHEVROLET MODEL 987891
CHEVROLET MODEL 987891
SET 448 FOLDER 6



CHASSIS TOP VIEW



CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12DZ6	
V2	Converter	12AD6	
V3	IF Amplifier	12EK6	
V4	Det.-AVC-AF Amp.	12DS7	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	DS501 *	Output					

* Some versions may use type 2N278

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	DELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■850	16	7273729	AFH3-54-30		WP300.7		TVLS-3021*	
B	▲400	16							
C	4	11.5AC							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

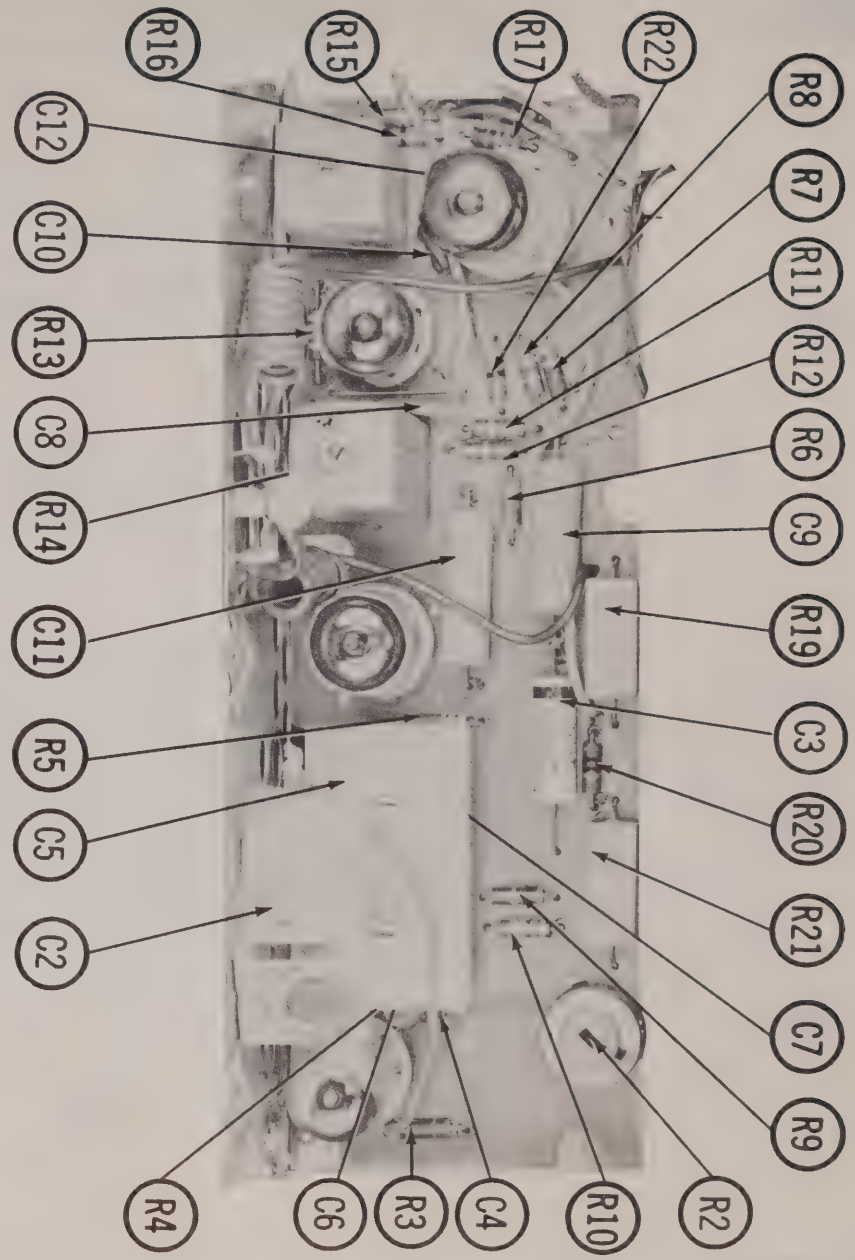
ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	DELCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2				7273107						
C3	.033	200		7273772	P288N-033	DF-303	CUB4S33	GTM-2133	4TM-S3	
C4	68			6369	BPD-000068	DD-680	L10Q68	CNO-468	5GA-Q68	
C5A										
B				7273693						
C6	39			6366	DI-39	DD-390	L10Q39	CNO-439	5GA-T39	
C7	220		5%	7273511	1469-00022	TCZ-220	5R5T22		MS-322	
C8	10000			7273774	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C9	.1	200		6690	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C10	47			6367	1468-000047	DD-470	5W5Q47	CNO-447	MS-447	
C11	.1	200		7238789	P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C12	100		10%		1469-0001	DD-101	5R5T1	MCB235	MS-310	Note 1
C13	.0047	200		7271556	P288N-0047	DD-472	CUB2D47	GTM-2247	6TM-D47	
C14	27			6364	DI-27	DD-270	L10Q27	CNO-427	5GA-Q27	
C15	68			6381	BPD-000068	DD-680	L10Q68	CNO-468	5GA-Q68	
C16	.33	100		7273872	P288N-33		WMF1P33E	GEM-2033	2WF-P33	
C17A	220			6375	DI-220	DD-221	L10T22	B-322	5GA-T22	
B	220				DI-220	DD-221	L10T22	B-322	5GA-T22	
C18	.47	50		7269780	P288N-47		WMF1P47E	GTM-1047	1EP-P5	

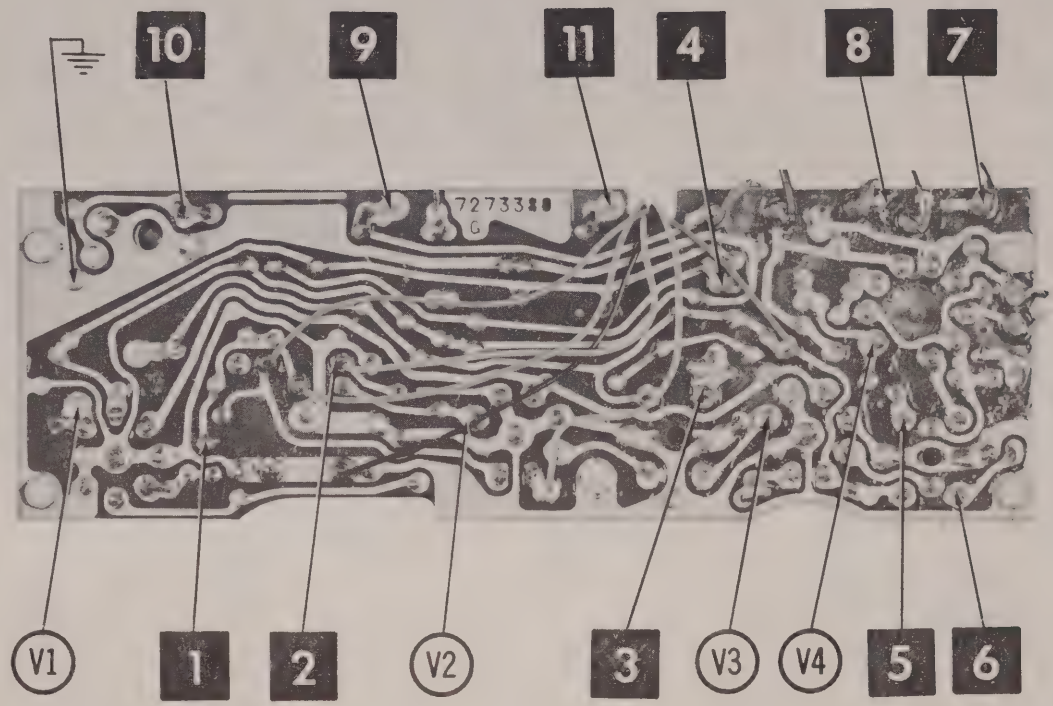
Note 1. Some versions may use 47mmf in this application (Part #6367).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	5meg		1221268					Tone Volume, Tap ⓐ 2meg
B	5meg							
C	Switch							
R2	110Ω	1(ww)	7273776				PFL-100	Bias

PRINTED BOARD





A Howard W. Sams CIRCUITRACE* Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

PARTS LIST & DESCRIPTION (continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	DELCO PART No.	NOTES
R3	2.2meg		1239	
R4	10K		1137	
R5	47K		1219	
R6	39meg		7273602	
R7	3.3meg		1241	
R8	3.9meg		1242	
R9	1meg		1235	
R10	820K		1234	
R11	1.8meg		1238	
R12	1.8meg		1238	
R13	3300Ω		1131	
R14	68Ω		1111	
R15	47K		1219	
R16	18Ω		1104	
R17	390K		1230	
R18	820K		1234	
R19	.33Ω		7271375	Fuse Type
R20	10Ω		1101	
R21	82Ω	5	7273786	Note 1
R22	47Ω		1109	

Note 1. Temperature compensating

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA DELCO PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Ant. Coil	7255738	19-1004	19-1004	BC-565	4610		
L2	Ant. Coil	1221138						
L3	RF Choke	7269684						1.8MH
L4	RF Coil	1221138						
L5	Osc. Coil	1221151						
L6	Input IF	1221257	16-6756	16-6756	BC-344	13-PH1		
L7	Output IF	1221253						
L8	RF Choke	1217846						1.4uh
L9	RF Choke	1217846						1.4uh
L10	Fil. Choke	1217846						1.4uh

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L11	.9A	.7Ω	.01HY	7274342				TC-2		

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	5	1	7274409			TA-48			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	REPLACEMENT DATA DELCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	9Ω Tap ⓐ 3-4Ω	1221290				TA-50①			① Use original channel frame

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA DELCO PART No.	QUAM PART No.	NOTES
SP1	6" x 9"	PM	3-4Ω	7273271 ①	69A3	① Alternate Part #7272731

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA DELCO PART No. FUSE	DELCO PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1		4A	148511					

MISCELLANEOUS

ITEM No.	PART NAME	DELCO PART No.	NOTES
M2	Spark Plate	1220885	Two Section
M3	Switch	7271424	Speaker Interlock
	Printed Board	7273380	

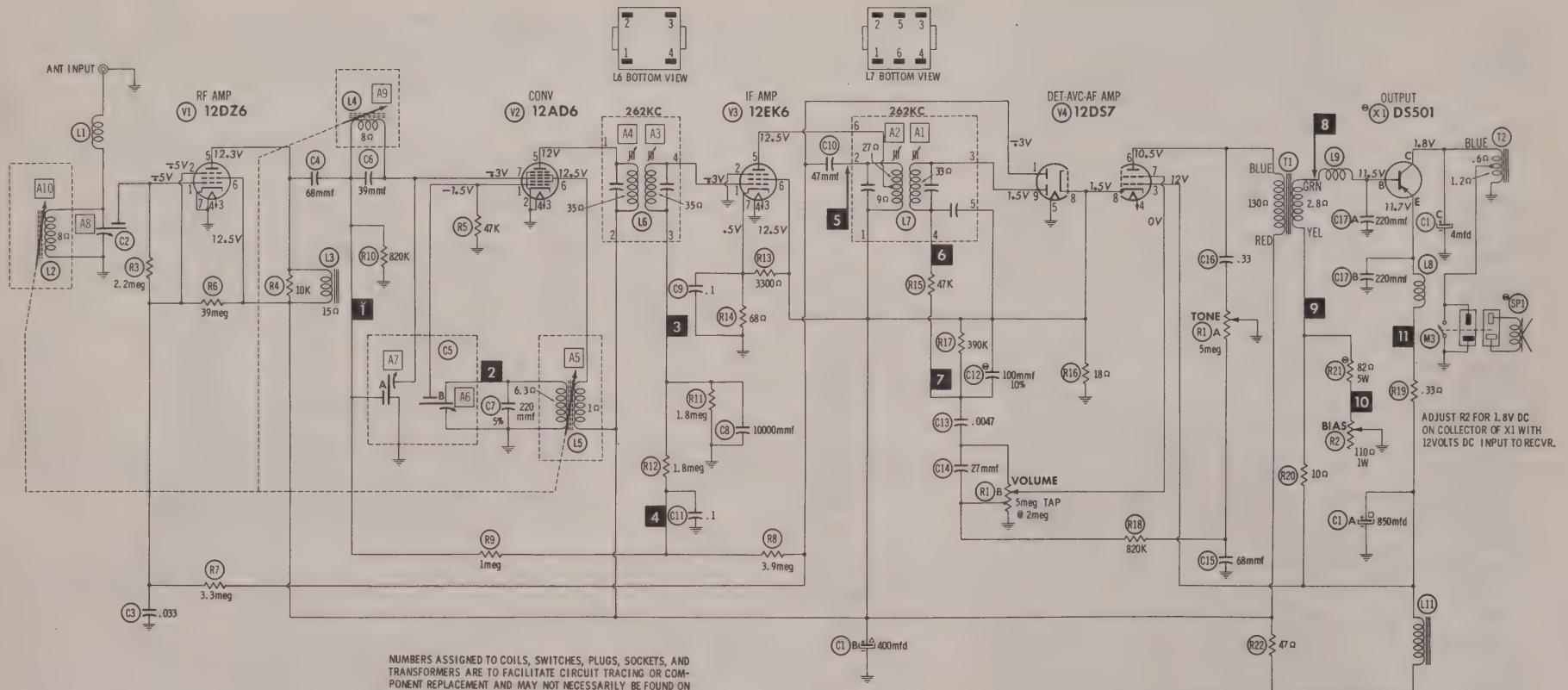
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	1990894	Control
Knob	7272970	Tone
Knob	7272969	Dummy
Push Button	7273070	5 Used
Pointer Assembly	7273102	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661



1. DC voltage measurements taken with vacuum tube voltmeter
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes posssible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12DZ6	10meg	8meg	1.9Ω	0Ω	†15Ω	†0Ω	0Ω		
V2	12AD6	47K	0Ω	1.9Ω	0Ω	†35Ω	†1Ω	820K		
V3	12EK6	1.2meg	0Ω	1.9Ω	0Ω	†9Ω	†0Ω	68Ω		
V4	12DS7	5.7meg	TP	†47Ω	1.9Ω	0Ω	†130Ω	0Ω	18Ω	440K

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

† MEASURED FROM JUNCTION OF R22 AND T1

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

TO 12.6V SUPPLY ON FUSE BLOCK

1.9 AMP

SW ON VOLUME CONTROL

TO DIMMER CONTROL ON FUSE BLOCK

TO FILS

#1891

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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CHEVROLET MODEL 987891

PHOTOFACT* Folder

EICO MODEL HF-12

EICO MODEL
HF-12

EICO MODEL
HF-12

TRADE NAME	Eico Model HF-12
MANUFACTURER	Electronic Instrument Co., Inc., 3300 Northern Blvd., Long Island Cityl, N. Y.
TYPE SET	AC Operated 6 Tube Audio Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 68 Watts, .66 Amp. @117 Volts AC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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J105

SET 448 FOLDER 7

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Phono-Tape Preamp.	ECC83/12AX7
V2	AF Amplifier	ECC83/12AX7
V3	AF Amp. -Phase Inv.	ECC83/12AX7

ITEM No.	USE	TYPE
V4	Output	EL84/6BQ5
V5	Output	EL84/6BQ5
V6	Rectifier	EZ81/6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	EICO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	30	400	23016	PRS450V30	BR3045	TC77	TD-30-450	TVA-1711	
C2A	▲20	400	24005					TVLS-3673.7*	
B	■40	350							
C	▲40	350							
C3	25	6	23020	SRE6V25	BBR25-6	TT6X25	ML30-6	TE-1091	
C4	10	6	23014	SRE25V10	BBR10-25	TT6X10	ML10-6	TE-1087	
C5	50	25	23007	SRE25V50	BBR50-25	TC29	TD-50-25	TE-1209	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

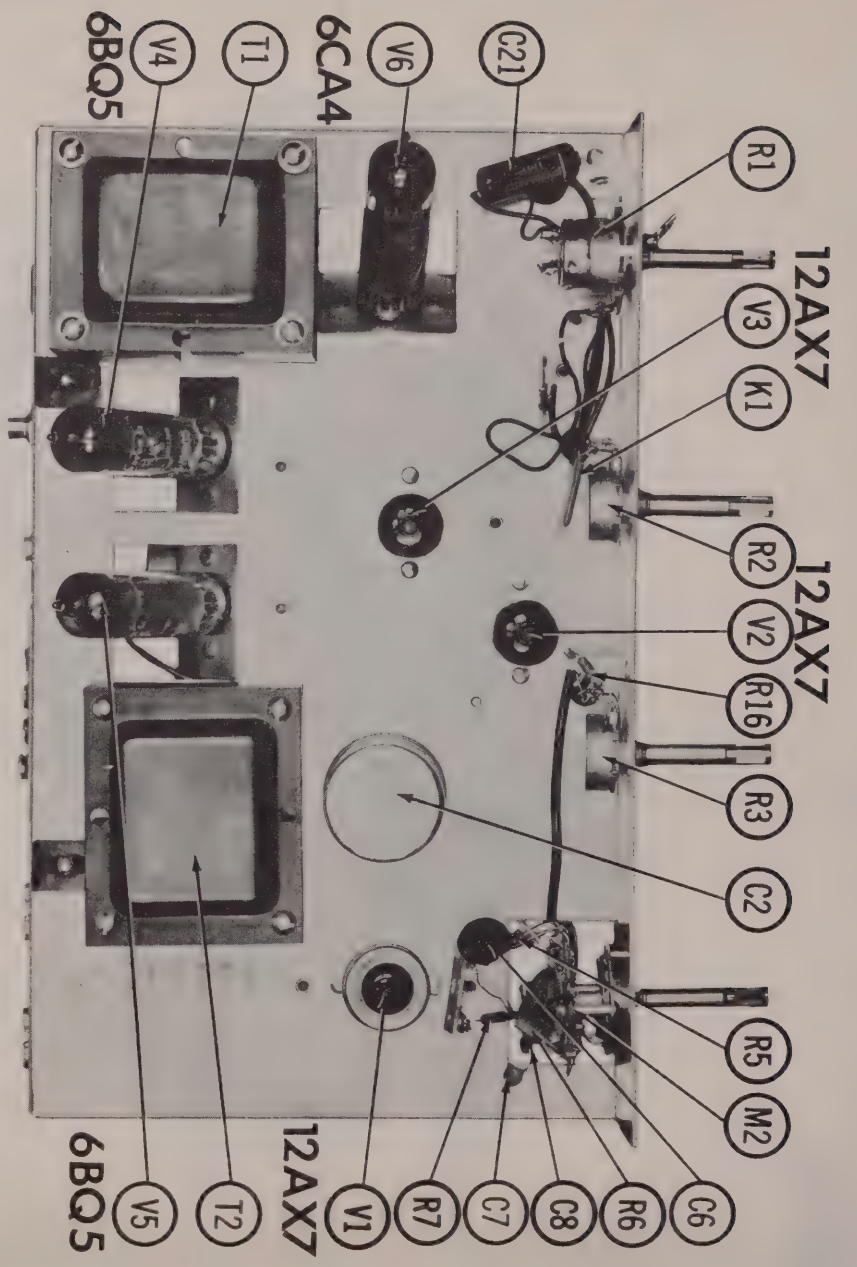
ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	EICO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	3000		10%	22549	DI 3000		PM6D3	GEM-1623	5GA-D3S 10%*	
C7	850		10%	22514						
C8	850		10%	22514						
C9	2200		10%	22507	DI 2200		PM6D22	JL-222	5GA-D22S 10%*	
C10	.25	200		20050	P288N-25		CUB2P25	GEM-2025	2TM-P25	
C11	25000			22517						
C12	.25	400	10%	20044			CUB4P25	GEM-4025	4TM-P25	
C13	6800		10%	22523			PM6D68		5HK-D68S 10%*	
C14	.1	400	10%	20039		DF-104	PM4P1		4TM-P1	
C15	150		10%	22529	DI 150	DD-151	L10T15	JL-315	5GA-T15S 10%*	
C16	47		10%	22533	DI 47	DD-470	L10Q47	CNO-447	5GA-Q47S 10%*	
C17	200		10%	22539	DI 200	DD-201	L10T2		5GA-T2S 10%*	
C18	200		10%	22539	DI 200	DD-201	L10T2		5GA-T2S 10%*	
C19	25000			22517						
C20	25000			22517						
C21	.03	600		20043	P688N-03	DF-303	CUB6S3	GEM-613	6TM-S3	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	EICO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	18038	B-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	1meg	½	18033	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	18034	BT-65	A47F5-1meg	Q19-133X	UT-431	Treble, Tap @ 250K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-1	SWE-12	76-1	US-26	Power On-Off
R4A	100Ω	2(ww)	19009	WN-101	A43-100	W11-084	R100L	Hum Adjust
B	Shaft			Not Req.	FKS-1/4	SK5	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	EICO PART No.	NOTES
R5	1meg		10407	
R6	90K 5%		11504	
R7	68K 5%		10520	
R8	100K		10410	
R9	10K		10400	
R10	470K		10431	
R11	200K 5%		11526	
R12	2200Ω		10423	
R13	1meg		10407	
R14	200K 5%		11526	
R15	4700Ω		10430	
R16	56K		10425	
R17	270K		10419	
R18	33K		10426	
R19	1200Ω		10427	
R20	470K		10431	
R21	100K		10410	
R22	3300Ω		10420	
R23	470K		10431	
R24	1800Ω 5%		11543	
R25	22K 5%		11538	
R26	10K		10400	
R27	100K 5%		11527	
R28	100K 5%		11527	
R29	330K		10412	
R30	10K		10400	
R31	330K		10412	
R32	10K		10400	
R33	165Ω 5%	5	14600	
R34	10K	1	10853	
R35	33K		10426	
R36	68K		10422	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	EICO PART No.	REPLACEMENT DATA
K1	Tone Comp.		29751	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA EICO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .66A	620 VCT @ .090A	6.3V @ 3.4A	30019						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA EICO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7000Ω CT	16Ω Taps @ 8Ω, 4Ω	32005							

MISCELLANEOUS

ITEM No.	PART NAME	EICO PART No.	NOTES
M1	Lamp	92000 *	#47
M2	Switch	60049	Selector (4 Position, Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

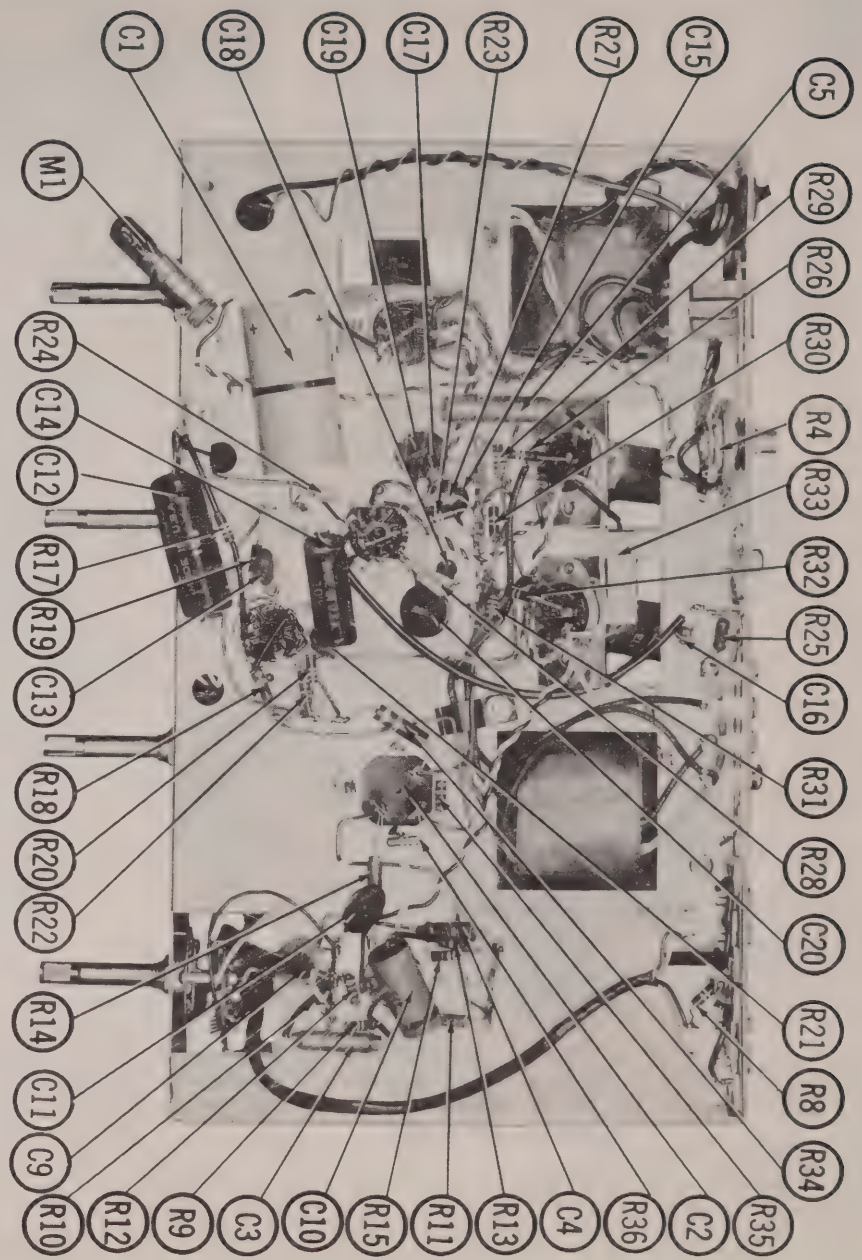
NAME	PART NO.	DESCRIPTION
Bezel	81091	
Knob	53007	4 Used

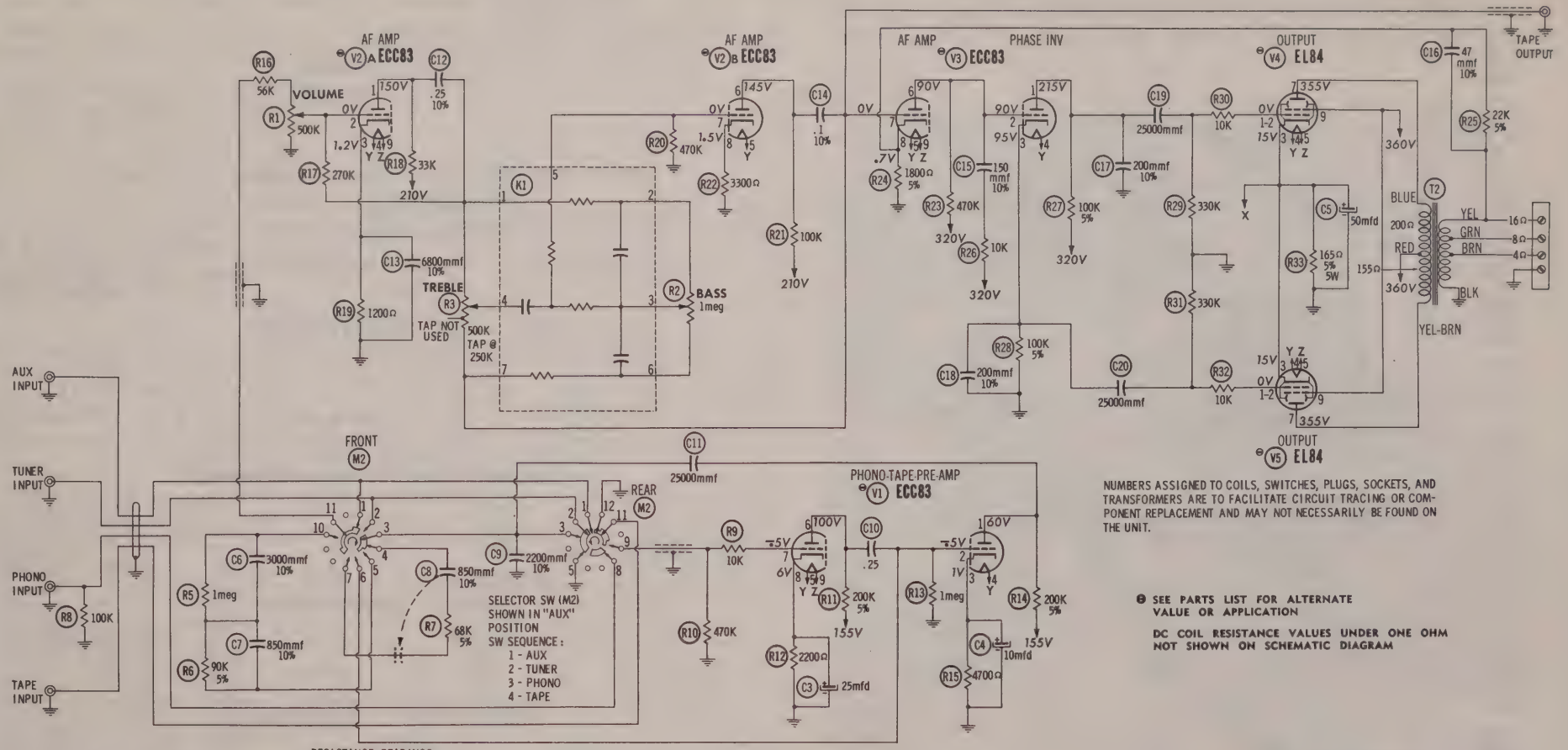
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS-BOTTOM VIEW





NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

❸ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†310K	1meg	4700Ω	200Ω	200Ω	†310K	480K	2200Ω	200Ω
V2	ECC83 12AX7	†75K	0Ω	1200Ω	200Ω	200Ω	†140K	300K	3300Ω	200Ω
V3	ECC83 12AX7	†110K	†480K	100K	200Ω	200Ω	†480K	350K	1800Ω	200Ω
V4	EL84 6BQ5	340K	340K	165Ω	200Ω	200Ω	NC	†200Ω	NC	†0Ω
V5	EL84 6BQ5	340K	340K	165Ω	200Ω	200Ω	NC	†155Ω	NC	†0Ω
V6	EZ81 6CA4	150Ω	NC	¶	200Ω	200Ω	NC	160Ω	NC	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 3 OF V6.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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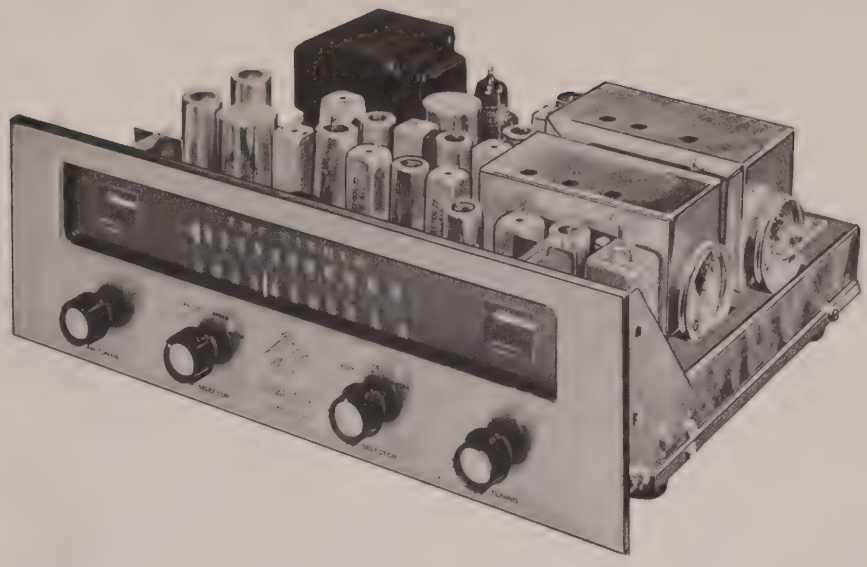
EICO MODEL HF-12

PHOTOFACT* Folder

EIA MEMBER

FISHER MODEL 101-R

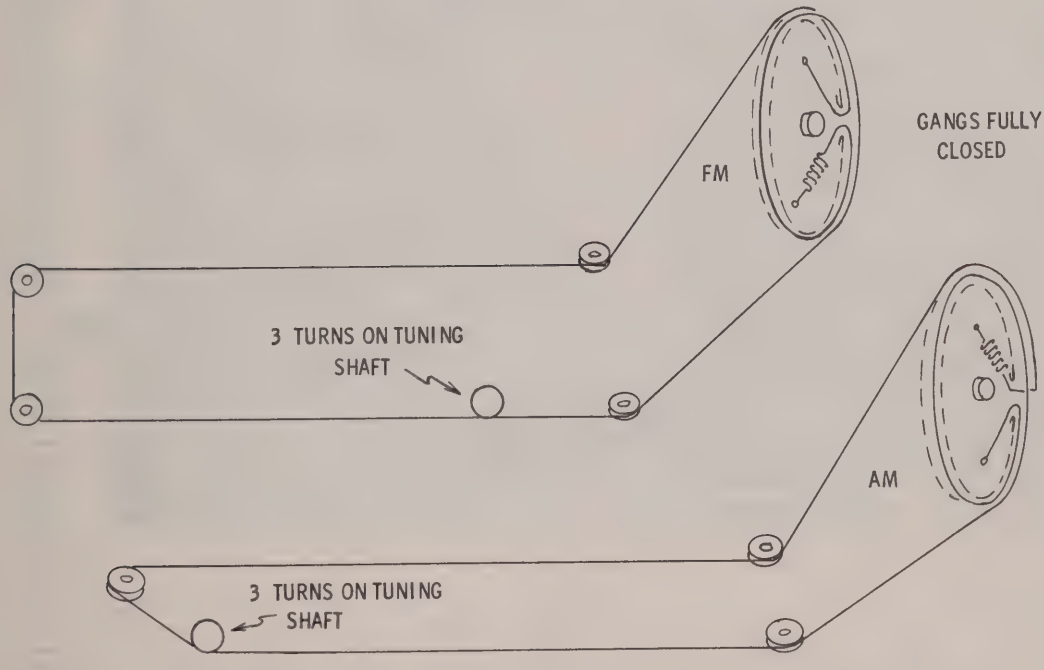
FISHER MODEL 101-R



TRADE NAME	Fisher Model 101-R		
MANUFACTURER	Fisher Radio Corp., 21-21 44th Drive, Long Island City 1, N. Y.		
TYPE SET	AC Operated 15 Tube FM-AM Tuner		
POWER SUPPLY	105-125 Volts AC, 50-60 Cycles	RATING	80 Watts, .74 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	515-1680KC	FREQ. MOD.	88-108MC

FISHER MODEL 101-R

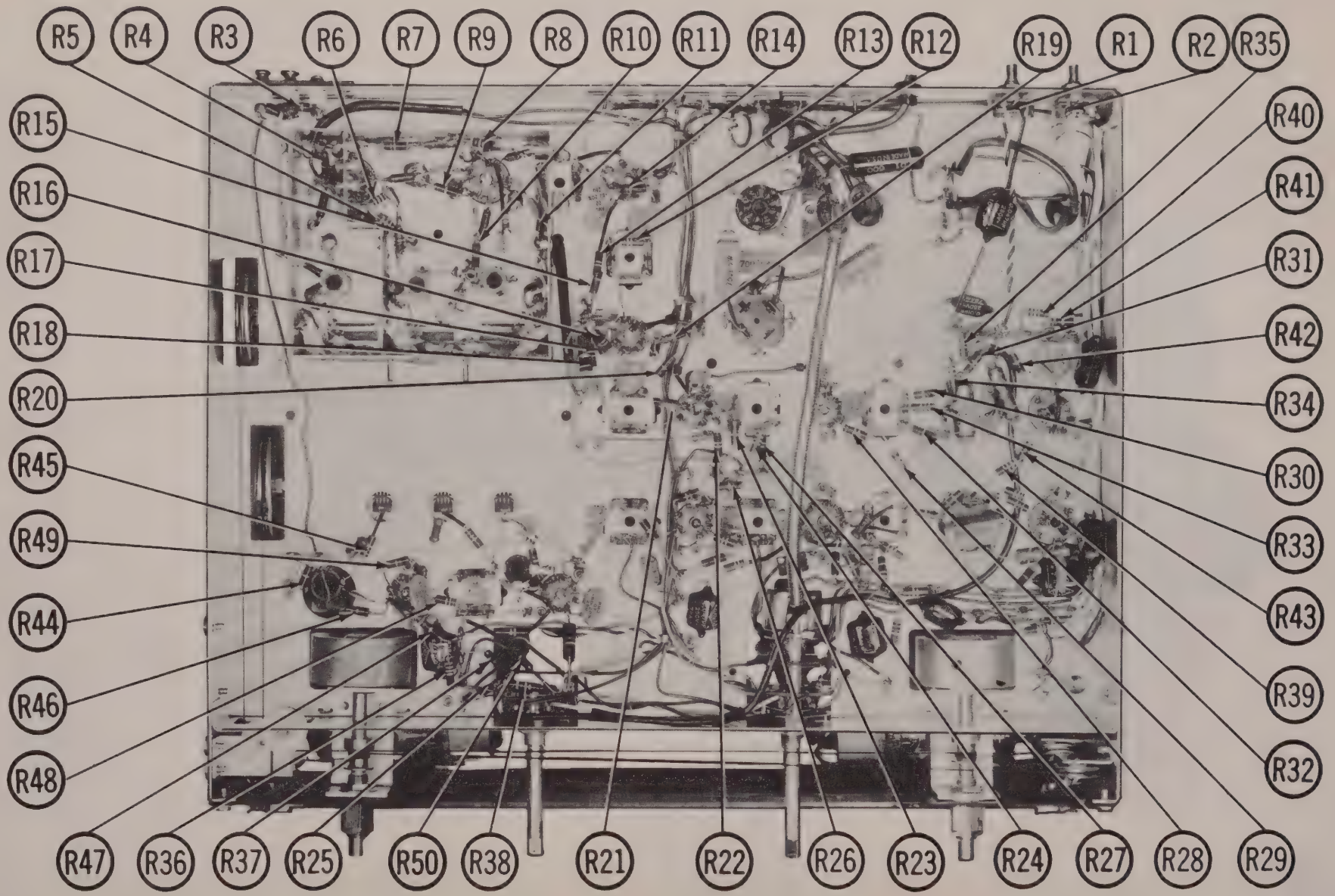
DIAL CORD STRINGING



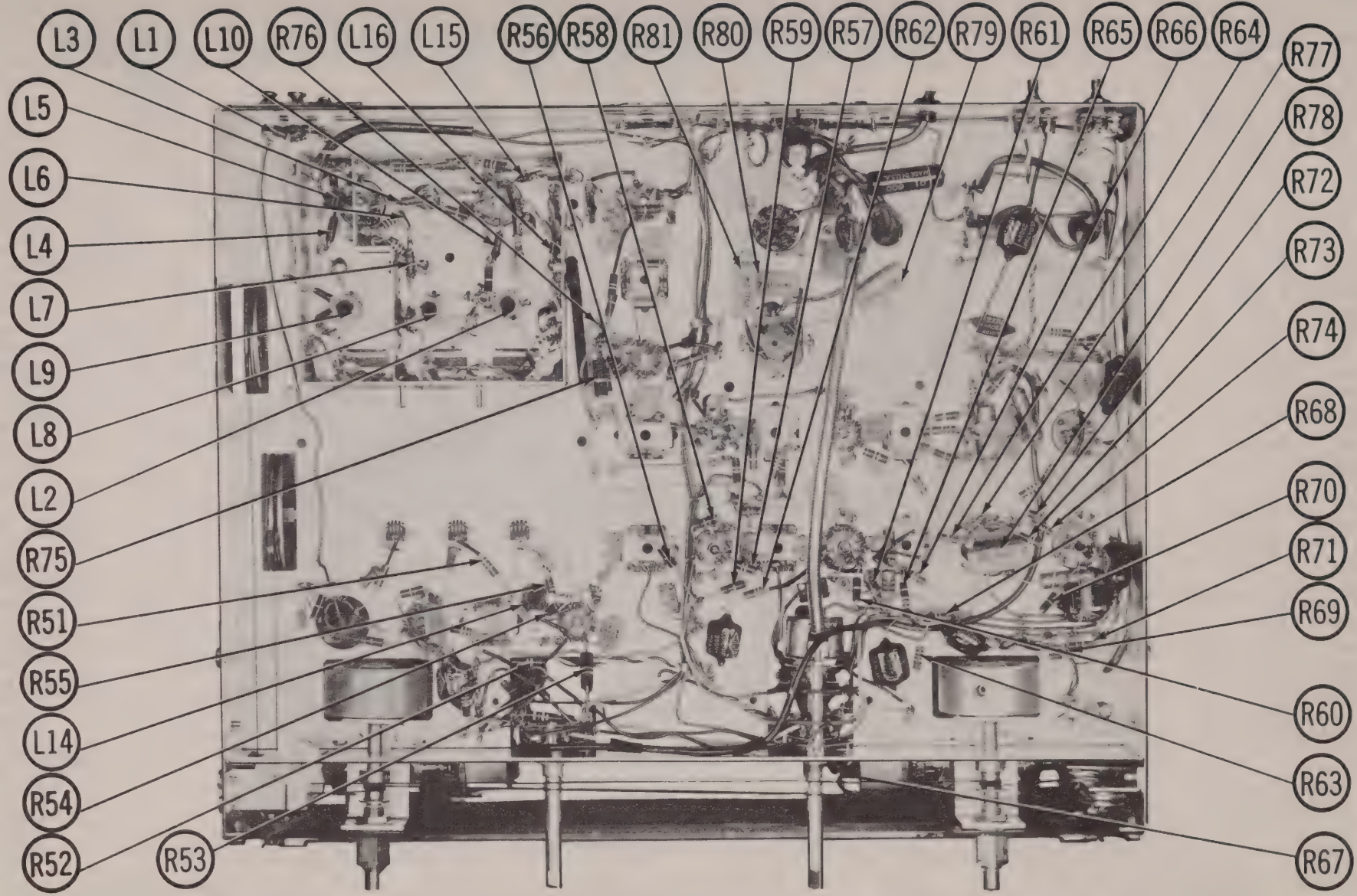
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

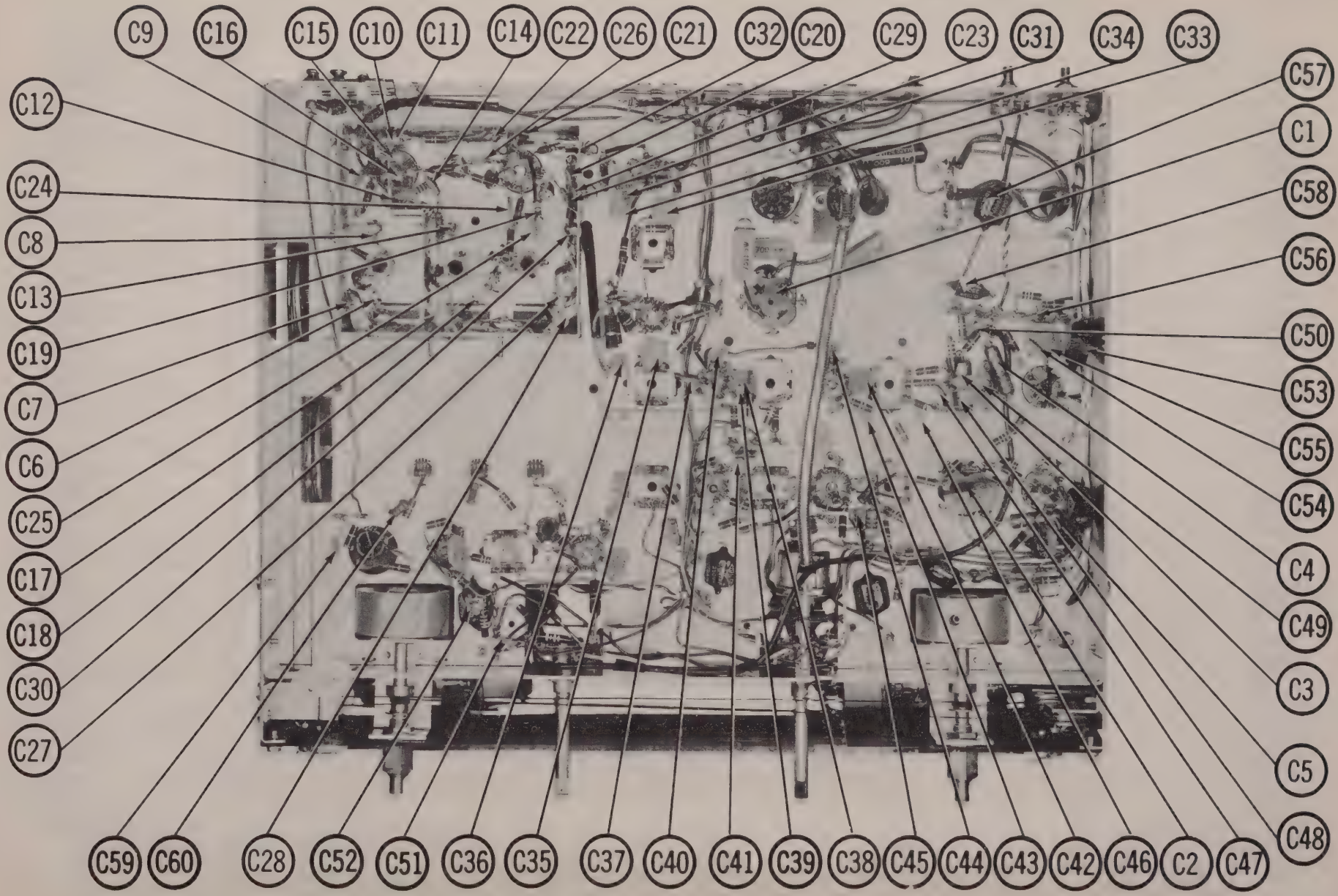
J10



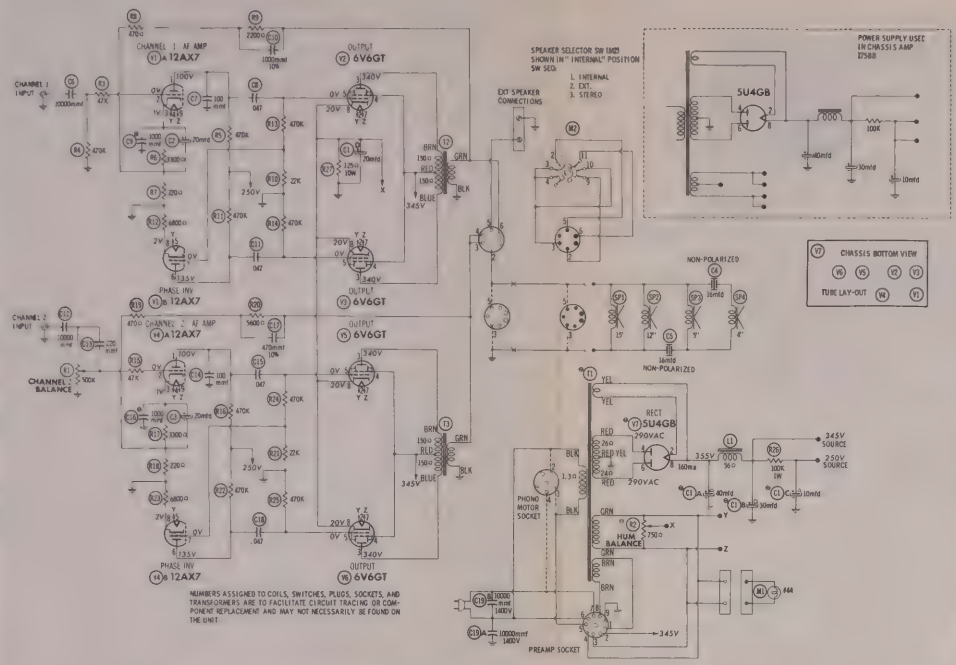
CHASSIS BOTTOM VIEW - RESISTOR IDENT. (R1-R50)

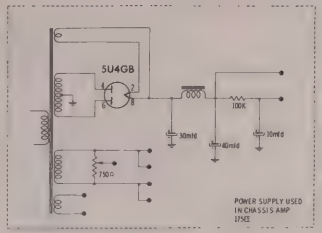


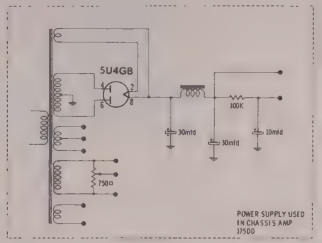
CHASSIS BOTTOM VIEW - INDUCTOR & RESISTOR IDENT. (R51-R81)

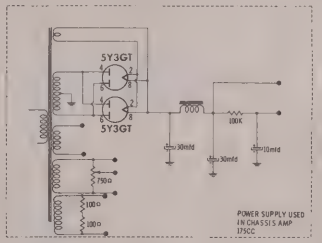


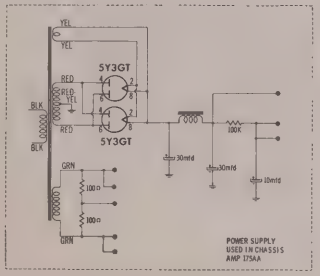
CHASSIS BOTTOM VIEW - CAPACITOR IDENT. (C1-C60)











RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†570K	520K	3500Ω	350Ω	350Ω	†570K	22K	6800Ω	350Ω
V2	6V6GT	NC	350Ω	†200Ω	†56Ω	490K	TP	350Ω	125Ω	
V3	6V6GT	NC	350Ω	†200Ω	†56Ω	470K	TP	350Ω	125Ω	
V4	12AX7	†570K	47K	3500Ω	350Ω	350Ω	†570K	22K	6800Ω	350Ω
V5	6V6GT	NC	350Ω	†200Ω	†56Ω	490K	TP	350Ω	125Ω	
V6	6V6GT	NC	350Ω	†200Ω	†56Ω	470K	NC	350Ω	125Ω	
V7	5U4GB	NC	1	NC	260	NC	260	NC	1	

1 THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT
† MEASURED FROM PIN 2 OF V7.
NC NO CONNECTION.
TP TIE POINT

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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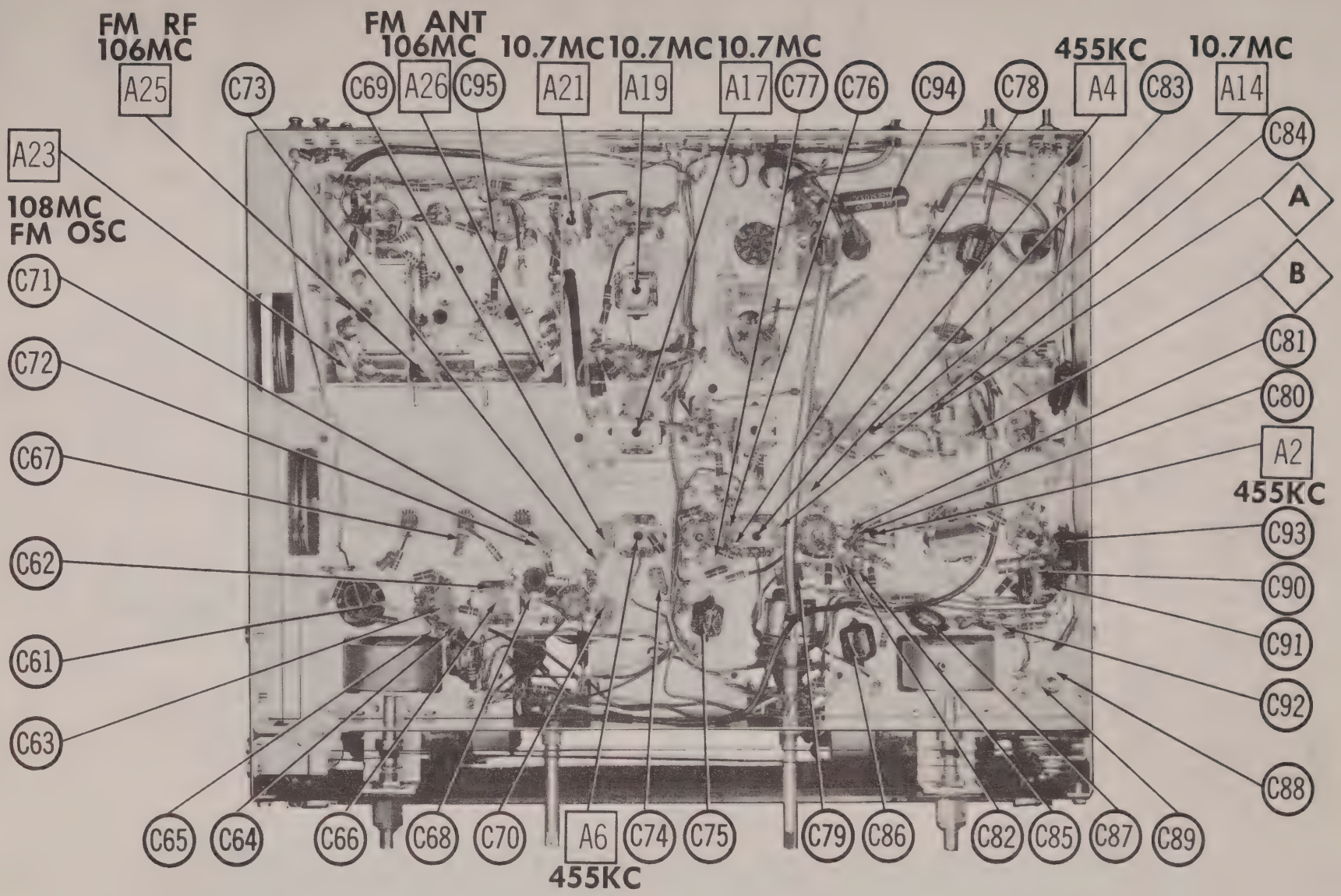
MAGNAVOX CHASSIS AMP-175AA, BB, CC, DD, EE, FF



CHASSIS BOTTOM VIEW - ALIGN. & CAPACITOR IDENT. (C61-C95)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A6, A15 thru A21..... GENERAL CEMENT #5097, 8727
WALSCO #2515

A7, A8, A9..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

A10 thru A13..... GENERAL CEMENT #8271, 8273, 8275, 8276, 8721, 8722, 9150, 9298, 5003
WALSCO #2516, 2519

A14, A22, A24, A28..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

A23, A25, A26, A27..... GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2525

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd.	High side to pin 7 (grid) of 6BE6 (V10). Low side to chassis.	455KC (400 ∿ Mod.)	AM (Sharp)	Point of non-interference	Across AM output jack	A1, A2, A3, A4, A5, A6	Adjust for maximum output.
2.	200mmf.	High side to AM antenna terminal. Low side to chassis.	1600KC	"	1600KC	"	A7, A8, A9	"
3.	"	"	600KC	"	600KC	"	A10, A11, A12	
4.	"	High side to pin 2 (grid) of EBF89 (V12). Low side to chassis.	10KC	"		"	A13	Adjust for MINIMUM output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR & VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd.	High side to pin 7 (grid) of 6AQ8 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A14, A15, A16, A17, A18, A19, A20, A21	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A22	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd.	High side to pin 7 (grid) of 6AQ8 (V2). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	Vert. amp to point Ⓐ. Low side to chassis.	A14, A15, A16, A17, A18, A19, A20, A21	Disconnect stabilizing capacitor C3. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. amp. to point Ⓑ. Low side to chassis.	A22	Reconnect stabilizing capacitor C3. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across FM antenna terminals with 120Ω in each lead.	108MC (45KC Swp.)	FM	108MC	DC probe to point Ⓐ. Common to chassis.	A23	Adjust for maximum deflection.
8.	"	"	88MC	"	88MC	"	A24	"
9.	"	"	106MC	"	106MC	"	A25, A26	"
10.	"	"	90MC	"	90MC	"	A27, A28	"

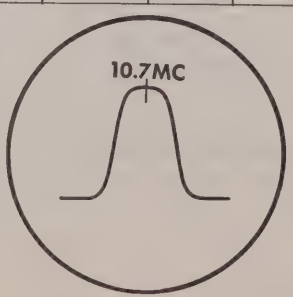


FIG. 1

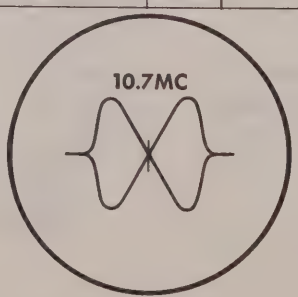
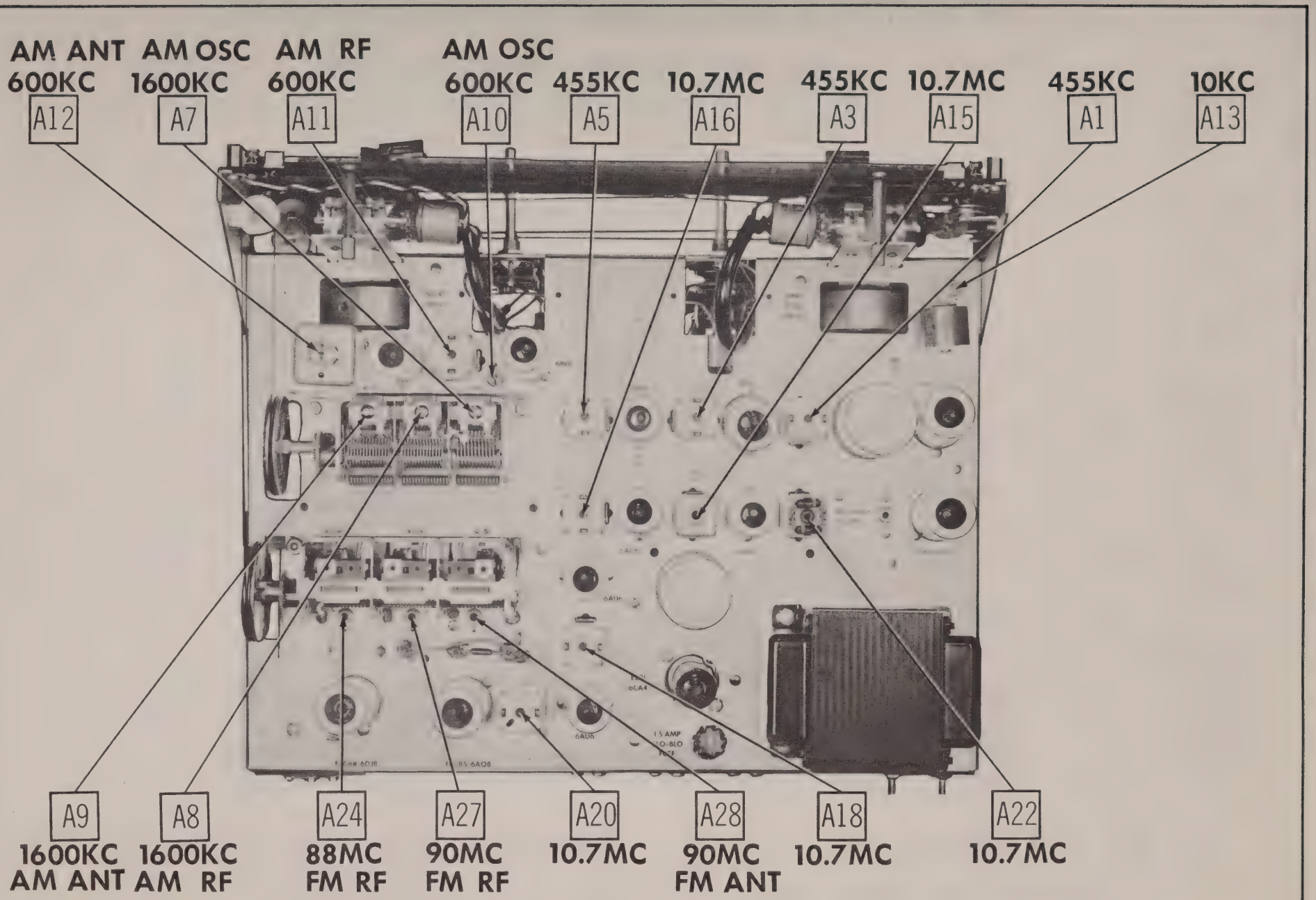
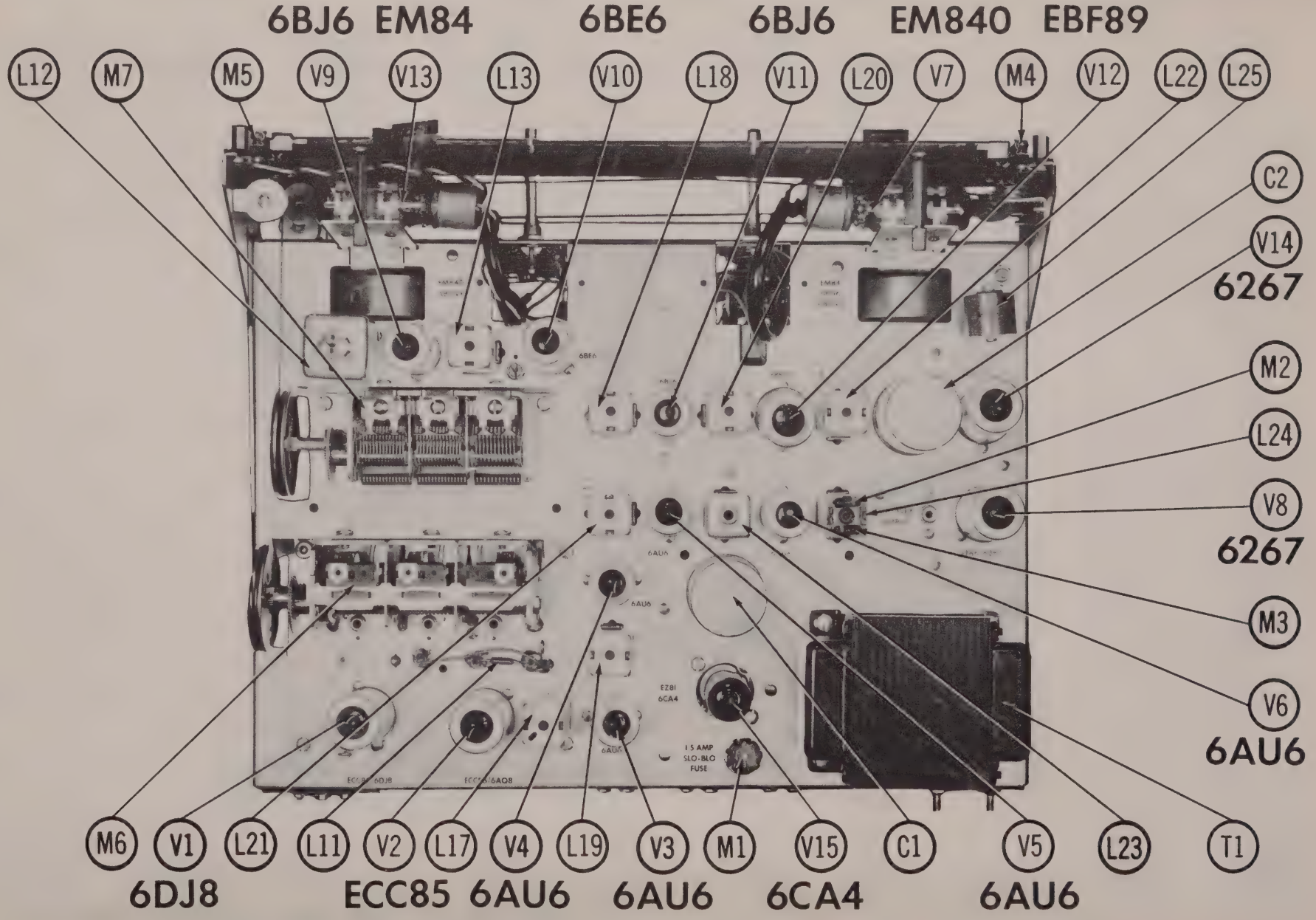


FIG. 2



CHASSIS TOP VIEW - ALIGNMENT IDENT.



CHASSIS TOP VIEW - TUBE, INDUCTOR, MISC. & CAPACITOR IDENT.

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amplifier	ECC88/6DJ8
V2	FM Mixer-FM Osc.	ECC85/6AQ8
V3	1st FM IF Amplifier	EF94/6AU6
V4	2nd FM IF Amplifier	EF94/6AU6
V5	3rd FM IF Amplifier	EF94/6AU6
V6	4th FM IF Amplifier	EF94/6AU6
V7	FM Tuning Indicator	EM840
V8	FM AF Amplifier	EF86/6267

ITEM No.	USE	TYPE
V9	AM RF Amplifier	6BJ6
V10	AM Converter	EK90/6BE6
V11	1st AM IF Amplifier	6BJ6
V12	2nd AM IF Amp. -AM Det. -AVC	EBF89
V13	AM Tuning Indicator	EM84/6FG6
V14	AM AF Amplifier	EF86/6267
V15	Rectifier	EZ81/6CA4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA FISHER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▰40	350	C684-122	AFH3-11	D0032	FP176	TMD-38	TVLS-2764.1*	
B	▲40	300			TC78				
C2A	▲40	300	C684-119	AFH4-02	D0020	FP217.28	TMD-31	TVLS-3580.5*	
B	▰40	300				TC55	TD-20-250		
C	■20	250							
C3	8	50	C629-138	PRS150V8	BBR8-150	TC41	TD-8-150	TVA-1405	
C4	25	6	C639-114	SRE6V25	BBR25-6	TT6X25	TD-25-25	TVA-1205	
C5	25	6	C639-114	SRE6V25	BBR25-6	TT6X25	TD-25-25	TVA-1205	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA FISHER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	8		NPO ±.5mmf	CC20CJ080D5					5TCCB-V8S±.5mmf*	
C7				C662-123						
C8	100	1000	N1500 10%	C50070-6						
C9	100	1000	N1500 10%	C50070-6						
C10	1000			C592-187	EF-001	MFT-1000			503C-D1	
C11	1000			C592-187	EF-001	MFT-1000			503C-D1	
C12	1000			C592-187	EF-001	MFT-1000			503C-D1	
C13	1000			C592-187	EF-001	MFT-1000			503C-D1	
C14	1000		10%	C50072-3	BPD-001		BYA10D1M	JL-210	5GA-D1S 10%*	①
C15	1000			C592-187	EF-001	MFT-1000			503C-D1	
C16	1000			C592-187	EF-001	MFT-1000			503C-D1	
C17				C662-123						
C18	5		NPO ±.5mmf	CC20CJ050D5	NPO-SI5				5TCCB-V5S±.5mmf*	
C19	68		N750 10%	CC20UJ680K5	N750-DI 68	TCN-68	CTA6Q68U		5TCU-Q68S 10%*	
C20	120		N1500 10%	C50070-9						
C21	24	1000	N150 5%	C50070-8						
C22	5		NPO 10%		NPO-SI 5		C10V5C		5TCCB-V5S 10%*	②
C23	47		N750 10%	C50070-4			CTA6Q47U		5TCU-947S 10%*	
C24	100	1000	N1500 10%	C50070-6						
C25	100	1000	N1500 10%	C50070-6						
C26	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C27	10		N220 ±.5mmf	CC20RH100D5						
C28				C662-123						
C29	1000			C50072-3	BPD-001	DD-102	BYA10D1M	B-210	5HK-D1	
C30	1000			C592-187	EF-001	MFT-1000			503C-D1	
C31	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C32	5		NPO 10%		NPO-DI 5		C10V5C		5TCCB-V5S 10%*	②
C33	2700	1000		C50071-5		DD-272	BYA10D27	B-227	10HKB-D27S*	
C34	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C35	2700	1000		C50071-5		DD-272	BYA10D27	B-227	10HKB-D27S*	
C36	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C37	47	1000	N750 10%	C50070-4				CN7-447		
C38	2700	1000		C50071-5		DD-272	BYA10D27	B-227	10HKB-D27S*	
C39	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA FISHER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C40	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C41	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C42	2700	1000		C50071-5		DD-272	BYA10D27	B-227	10HKB-D27S*	
C43	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C44	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C45	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C46	330	1000	10%	C50072-1		MD-331	L10T33	JL-333	10GAB-T33S 10%*	
C47	330	1000	10%	C50072-1		MD-331	L10T33	JL-333	10GAB-T33S 10%*	
C48	330	1000	10%	C50072-1		MD-331	L10T33	JL-333	10GAB-T33S 10%*	
C49	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C50	2200	1000	10%	C50072-5		DD-202		JL-222	10HKB-D22	
C51	330	1000	10%	C50072-1		MD-331	L10T33	JL-333	10GAB-T33S 10%*	
C52	.047	250	10%	C50074-27					4TM-S47S 10%*	
C53	.1	250	10%	C50074-28					4TM-P1S 10%*	
C54	100	1000	N1500	C50070-5						
C55	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C56	24		N150 10%	C50070-8						
C57	.047	250	10%	C50074-27					4TM-S47S 10%*	
C58	.01	250	10%	C50074-25				GEM-1611	4TM-S1S 10%*	
C59	24		N150 10%	C50070-8						
C60	10		NPO	CC20CH100G5	NPO-SI 10	TCZ-10	CTA6Q1C	CNO-410	5TCC-Q1	
C61	100	1000	N1500	C50070-5						
C62	.68			C50077-6N		TCZ-R68				
C63	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C64	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C65	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C66	47	1000	N750 10%	C50070-4				CN7-447		
C67	10		NPO	CC20CH100G5	NPO-SI 10	TCZ-10	CTA6Q1C	CNO-410	5TCC-Q1	
C68	100	1000	N1500	C50070-5						
C69	470		5%	C3334	1464-00047		5R5T47		MS-347	
C70	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C71	100	1000	N1500	C50070-5						
C72	10		N1500±.5mmf	CC20VK100D5						
C73	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C74	470		5%	C3334	1464-00047		5R5T47		MS-347	
C75	.047	250	10%	C50074-27						
C76	470		5%	C3334	1464-00047		5R5T47		MS-347	
C77	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C78	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C79	470		5%	C3334	1464-00047		5R5T47		MS-347	
C80	10		NPO	CC20CH100G5	NPO-DI 10	TCZ-10	CTA6Q1C	CNO-410	5TCC-Q1	
C81	1	1000	P100	C50070-1						
C82	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C83	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C84	5000			C50089-1	BPD-005	DD-502	BYA10D5	B-250	5HK-D5	
C85	220		10%	CC21GP221K5	DI-220	MD-221	L10T22	JL-322	5GA-T22S 10%*	
C86	.047	250	10%	C50074-27					4TM-S47S 10%*	
C87	.047	250		C50074-27					4TM-S47S 10%*	
C88	160-500			C629-151-5						
C89	560	1000	10%	C50072-14		MD-561		JL-356	10GAB-T56S 10%*	
C90	20000			C50089-4	BPD-02	DD-203	BYB6S2	B-120	5GA-S2	
C91	.1	250	10%	C50074-28					4TM-P1S 10%*	
C92	47	1000	N750 10%	C50070-4				CN7-447		
C93	.1	250	10%	C50074-28					4TM-P1S 10%*	
C94	.01	600		C2747	P688N-01	D6-103	CUB6S1	GEM-611	6TM-S1	
C95	1000			C592-187	EF-001	MFT-1000			503C-D1	

① Some versions may use 5000mmf in this application (Part #C50089-1).
② Not used in some versions.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA FISHER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	R520-139	JP-504				FM Audio Output Level
R2	500K	½	R520-139	JP-504				AM Audio Output Level

PARTS LIST & DESCRIPTION (continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	FISHER PART No.	NOTES
R3	270Ω		RC20BF271K	
R4	100K		RC20BF104K	
R5	330K		RC20BF334K	
R6	330K		RC20BF334K	
R7	120Ω		RC20BF121K	①
R8	470K		RC20BF474K	
R9	2200Ω		RC20BF222K	
R10	22Ω		RC20BF220K	
R11	1000Ω		RC20BF102K	
R12	47K		RC20BF473K	
R13	82K		RC20BF823K	
R14	100Ω		RC20BF101K	
R15	1000Ω		RC20BF102K	
R16	82K		RC20BF823K	
R17	100Ω		RC20BF101K	
R18	1000Ω		RC20BF102K	
R19	1.8meg		RC20BF185K	
R20	1.8meg		RC20BF185K	
R21	120K		RC20BF124K	
R22	82K		RC20BF823K	
R23	1000Ω		RC20BF102K	
R24	330K		RC20BF334K	
R25	330K		RC20BF334K	
R26	10meg		RC20BF106K	
R27	22K		RC20BF223K	
R28	82K		RC20BF823K	
R29	1000Ω		RC20BF102K	
R30	1000Ω		RC20BF102K	
R31	15K		RC20BF153K	
R32	1500Ω		RC20BF152K	
R33	270Ω		RC20BF271K	
R34	33K		RC20BF333K	
R35	22K		RC20BF223K	
R36	330K		RC20BF334K	
R37	2.2meg		RC20BF225K	
R38	470K		RC20BF474K	
R39	39K		RC20BF393K	
R40	330K		RC20BF334K	
R41	1.8meg		RC20BF185K	
R42	1meg		RC20BF105K	
R43	560Ω		RC20BF561K	
R44	1000Ω		RC20BF102K	
R45	4.7Ω		RC20BF4R7K	
R46	1.8meg		RC20BF185K	
R47	4.7meg		RC20BF475K	
R48	47K		RC20BF473K	
R49	100Ω		RC20BF101K	
R50	1000Ω		RC20BF102K	
R51	4.7Ω		RC20BF4R7K	
R52	820K		RC20BF824K	
R53	22K	1	RC30BF223K	
R54	22K		RC20BF223K	②
R55	100Ω		RC20BF101K	
R56	1000Ω		RC20BF102K	
R57	82K		RC20BF823K	
R58	100Ω		RC20BF101K	
R59	1000Ω		RC20BF102K	
R60	2.2meg		RC20BF225K	
R61	820K		RC20BF824K	
R62	47K		RC20BF473K	
R63	180Ω		RC20BF181K	
R64	1000Ω		RC20BF102K	
R65	3.3meg		RC20BF335K	
R66	56K		RC20BF563K	
R67	470K		RC20BF474K	
R68	22K		RC20BF223K	
R69	330K		RC20BF334K	
R70	1meg		RC20BF105K	
R71	2.2meg		RC20BF225K	
R72	47K		RC20BF473K	
R73	150K		RC20BF154K	
R74	560Ω		RC20BF561K	
R75	2200Ω	1	RC30BF222K	
R76	1000Ω		RC20BF102K	
R77	5600Ω		RC20BF562K	
R78	270Ω	5	R684-141	
R79	270Ω	5	R684-141	
R80	270Ω	5	R684-141	
R81	75Ω	5	R684-140	

① Some versions may use 1200Ω in this application (Part #RC20BF122K).
② Some versions may use 33K in this application (Part #RC20BF333K).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA FISHER PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	L50066-8						3.3uh
L2	FM Ant. Trans.	L662-124						
L3	Fil. Choke	L50066-3	19-1000	19-1000	BC-561	4602		1.2uh
L4	RF Choke	L50066-3	19-1000	19-1000	BC-561	4602		1.2uh
L5	Cathode Choke	L50066-19						.56uh
L6	RF Choke	L50066-19						.56uh
L7	RF Choke	L629-180						3 turns on 100Ω
L8	FM RF Coil	L662-125						
L9	FM Osc. Coil	L662-126						
L10	RF Choke	L50066-3	19-1000	19-1000	BC-561	4602		1.2uh
L11	RF Choke	L50066-3	19-1000	19-1000	BC-561	4602		1.2uh
L12	AM Ant. Trans.	L629-171						
L13	AM RF Coil	L556-125 ①						
L14	AM Osc. Coil	L550-122	14-1055	14-1055		70-OSC*		*Disregard tap
L15	RF Choke	L50066-3	19-1000	19-1000	BC-561	4602		1.2uh
L16	Cathode Choke	L50066-19						.56uh
L17	1st FM IF Trans.	ZZ662-117	16-3490▲	16-3490▲		1463-PC▲		▲Remove C32
L18	1st AM IF Trans.	ZZ509-132						
L19	2nd FM IF Trans.	ZZ629-142	16-3487	16-3487	FM-254	1463		
L20	2nd AM IF Trans.	ZZ509-132						

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA FISHER PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L21	3rd FM IF Trans.	ZZ629-142	16-3487	16-3487	FM-254	1463		
L22	3rd AM IF Trans.	ZZ2984	16-6758	16-6758	BC-353	12-C2	RF-2	
L23	FM Limiter	L670-145						
L24	Ratio Detector	ZZ592-170						
L25	10KC Filter	L644-120						295MH

① Alternate Part #L670-151

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA FISHER PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V Ⓐ .74A	510 VCT Ⓐ .100A	6.3V Ⓐ 2.5A	T684-124						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V Ⓐ 2.6A									

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA FISHER PART No. FUSE	FISHER PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1½A 125V S/B	F684-143		31301.5 (1½A 125V S/B)	342012	MDL 1½	HKP-CC

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA FISHER PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M2	1N541*		1N636	1N295	FM Detector (Pigtail) Matched
M3	1N541*		1N636	1N295	FM Detector (Pigtail)

* Some versions may use 1N542 in this application (Part #V-1N542).

MISCELLANEOUS

ITEM No.	PART NAME	FISHER PART No.	NOTES
M4	Lamp	I50082	7V, 2W
M5	Lamp	I50082	7V, 2W
M6	Tuning Cap.	C662-113	FM, 3 Gang
M7	Tuning Cap.	C684-127	AM, 3 Gang (Ant. 10-505mmf, RF. 10-503mmf, Osc. 7-138mmf)
M8	Switch	S684-123	AM Selector (4 Position, Rotary Wafer Type) Includes Power On-Off (SPST, Snap Type)
M9	Switch	S684-120	FM Selector (3 Position, Rotary Wafer Type)

WIRING DATA

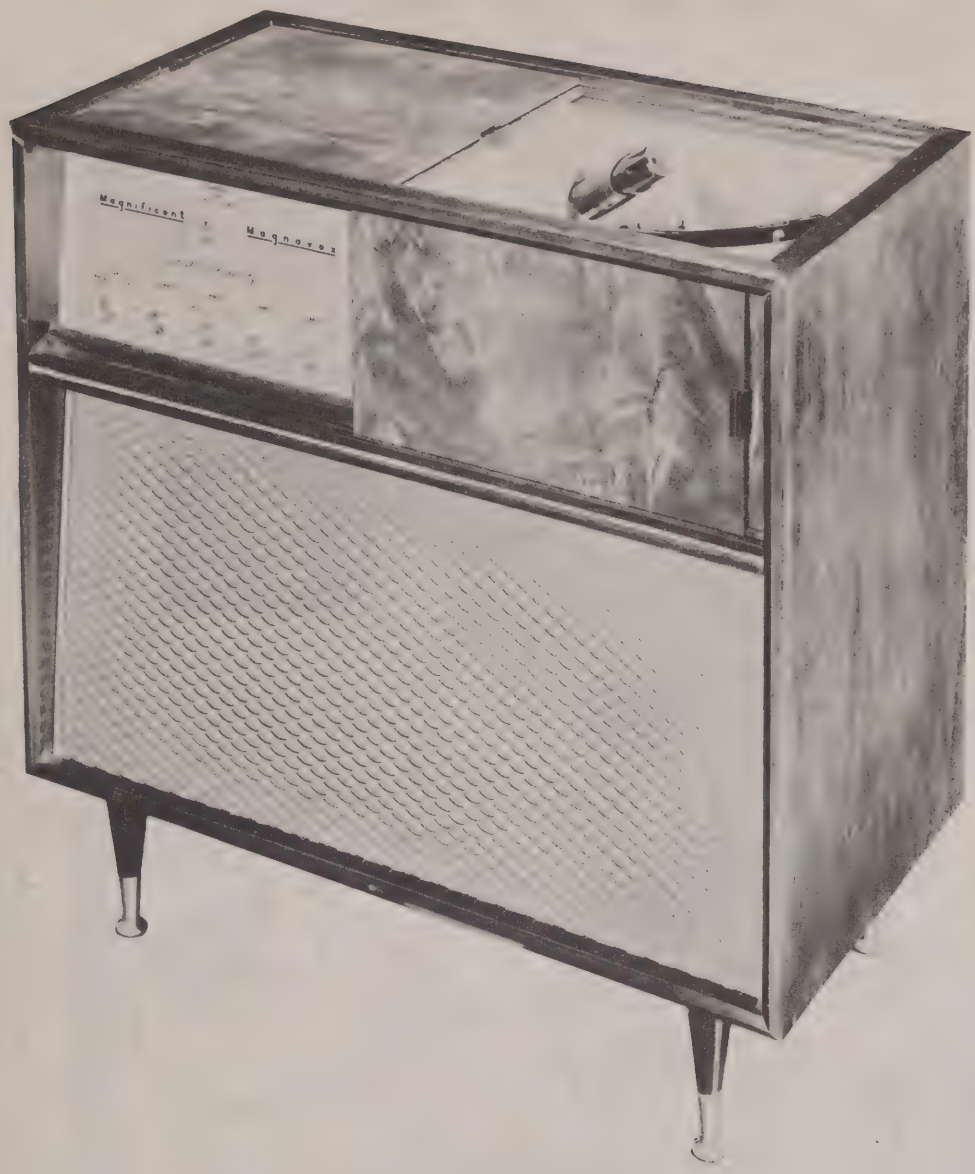
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

PHOTOFACT* Folder

MAGNAVOX CHASSIS AMP-175AA, BB, CC, DD, EE, FF

MAGNAVOX CHASSIS AMP-175AA,
BB, CC, DD, EE, FF



MAGNAVOX CHASSIS AMP-175AA,
BB, CC, DD, EE, FF

TRADE NAME	Magnavox Chassis AMP-175AA, AMP-175BB, AMP-175CC, AMP-175DD, AMP-175EE, AMP-175FF
MANUFACTURER	Magnavox Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated 7 Tube Stereo Amplifier
POWER SUPPLY	110-120 Volts AC, 60 Cycles RATING 110 Watts, 1.05 Amp. @ 117 Volts AC (AMP-175FF)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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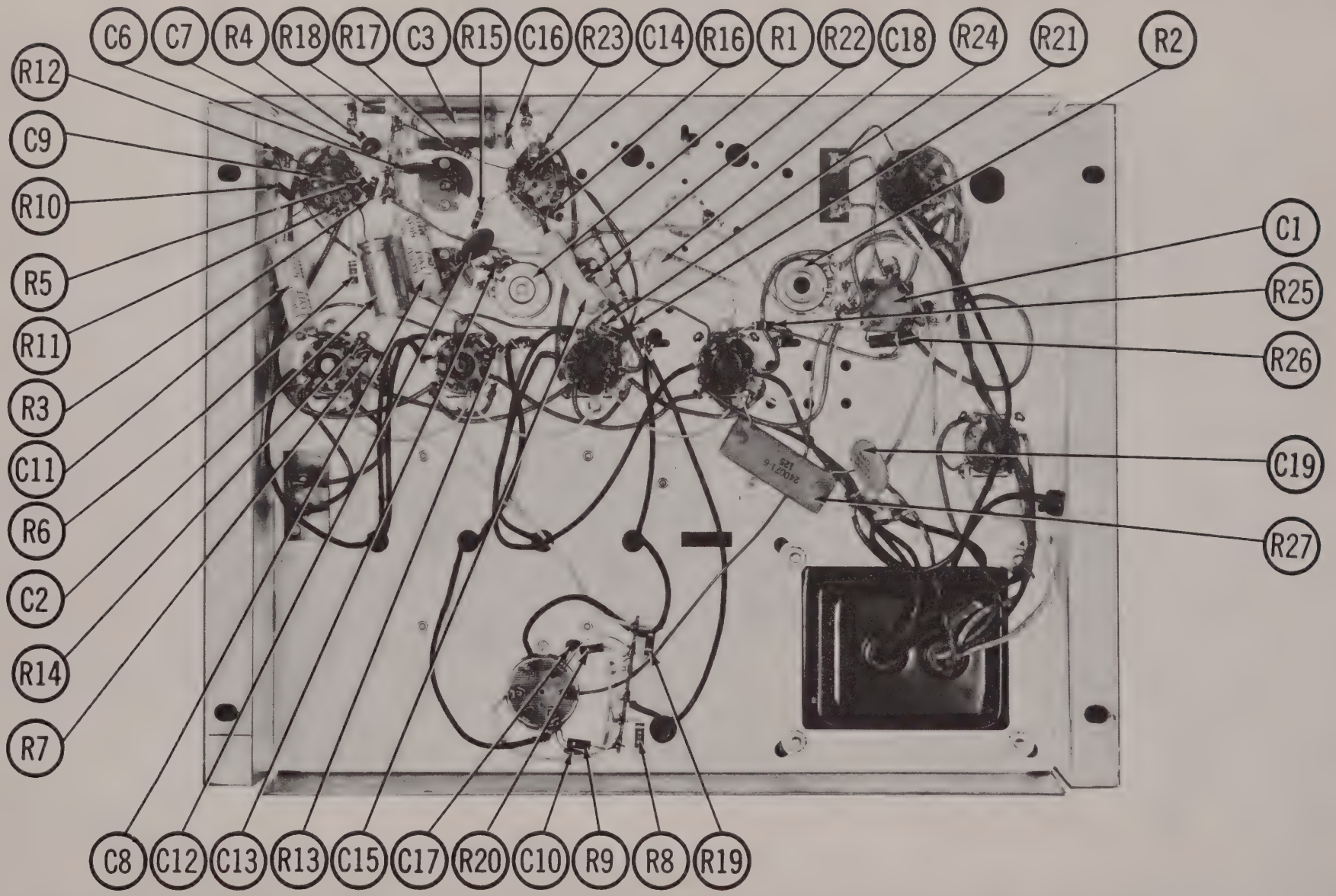


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Chan. 1 AF Amp. -Phase Inv.	12AX7	
V2	Chan. 1 Output	6V6GT	
V3	Chan. 1 Output	6V6GT	
V4	Chan. 2 AF Amp.-Phase Inv.	12AX7	
V5	Chan. 2 Output	6V6GT	
V6	Chan. 2 Output	6V6GT	
V7	Rectifier	5U4GB	①

① Two 5Y3GT tubes ued in AA, CC versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	450	270021-56 ①	AFH4-78	D0640	FP429	TMQ-92	TVL-4734	
B	■30	450							
C	▲10	450							
D	20	25							
C2	20	25	270027-28	PRS50V20	BBR20-25	TT25X20	TD-20-150	TVA-1410	
C3	20	25	270027-28	PRS50V20	BBR20-25	TT25X20	TD-20-150	TVA-1410	
C4	16	25NP	270040-4	NP-PRS30V20	BBR50-25 †	TCN2516		TVAS-1204.3*	
C5	16	25NP	270040-4	NP-PRS30V20	BBR50-25 †	TCN2516		TVAS-1204.3*	

† Connect negative leads together. ① Some versions may use two 30-10mfd units (Part #270023-2).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	10000			250218-19	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	100			250218-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C8	.047	400		250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C9	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	①
C10	1000		10%	250218-12	DI 1000			JL-210	5GA-D1S 10% *	
C11	.047	400		250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C12	10000			250218-19	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C13	220			250218-5	BPD-00022	DD-221	L10T22	B-322	5GA-T22	
C14	100			250218-22	BPD-0001	DD-101	L10T1	UC-531	5GA-T1	
C15	.047	400		250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C16	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	①
C17	470		10%	250218-15	DI 470	MD-471		JL-347	5GA-T47S 10% *	
C18	.047	400		250211-11	P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C19A	10000	1400		250219-3	DAC-27	DD16-103	HVE16S1	2HV-110	20HKB-S1	
B	10000	1400			DAC-27	DD16-103	HVE16S1	2HV-110	20HKB-S1	

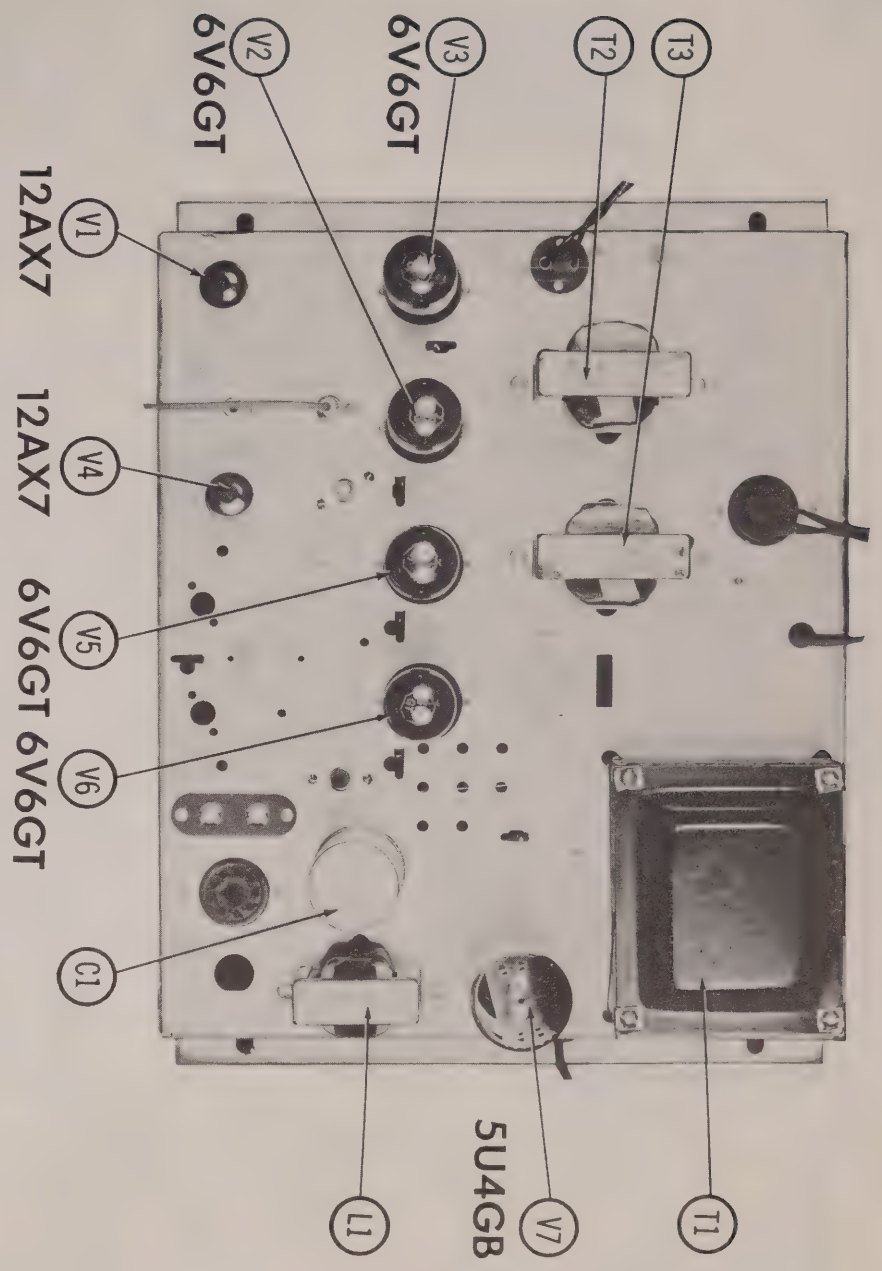
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
① Some versions may use 2000mmf in this application (Part #250218-20).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	220132-17	BX-59	B47-500K-S	B11-133	TA55L	Balance, Chan. 2
B	Shaft			Not Req.	Not Req.	TM2	Not Req.	
R2A	750Ω	½	220654-2	AB-5	B47-750-S	Q11-105	PTA751L	Hum Balance, Note 1
B	Shaft			AK-1	Not Req.	Not Req.	Not Req.	

Note 1. Not used in AA, BB versions.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R3	47K		230104-82	
R4	470K		230104-94	
R5	470K		230104-94	
R6	3300Ω		230104-68	
R7	220Ω		230104-54	
R8	470Ω		230104-58	
R9	2200Ω		230104-66	
R10	22K		230104-78	
R11	470K		230104-94	
R12	6800Ω		230104-72	
R13	470K		230104-94	
R14	470K		230104-94	
R15	47K		230104-82	
R16	470K		230104-94	
R17	3300Ω		230104-68	
R18	220Ω		230104-54	
R19	470Ω		230104-58	
R20	5600Ω		230104-71	
R21	22K		230104-78	
R22	470K		230104-94	
R23	6800Ω		230104-72	
R24	470K		230104-94	
R25	470K		230104-94	
R26	100K	1	230105-86	
R27	125Ω	10	240071-6	

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L1	.160A	56Ω	1 Hy.	320041-2	26C41	C-2994	F-804	C-2327	26C41	C-24X

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ 1.05A	580VCT ⓐ .160A	5V ⓐ 3A	300173-1 ①	26R90	P-3055			26R90	R-52BC
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ⓐ 2.6A	6.3V								

① Ch. AMP-175BB uses Part #300154-1.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6000Ω CT	4-6Ω	320819-1	22S58	A-2935	AU-609	A-3870	22S58	S-55X	
T3	6000Ω CT	4-6Ω	320819-1	22S58	A-2935	AU-609	A-3870	22S58	S-55X	

SPEAKER

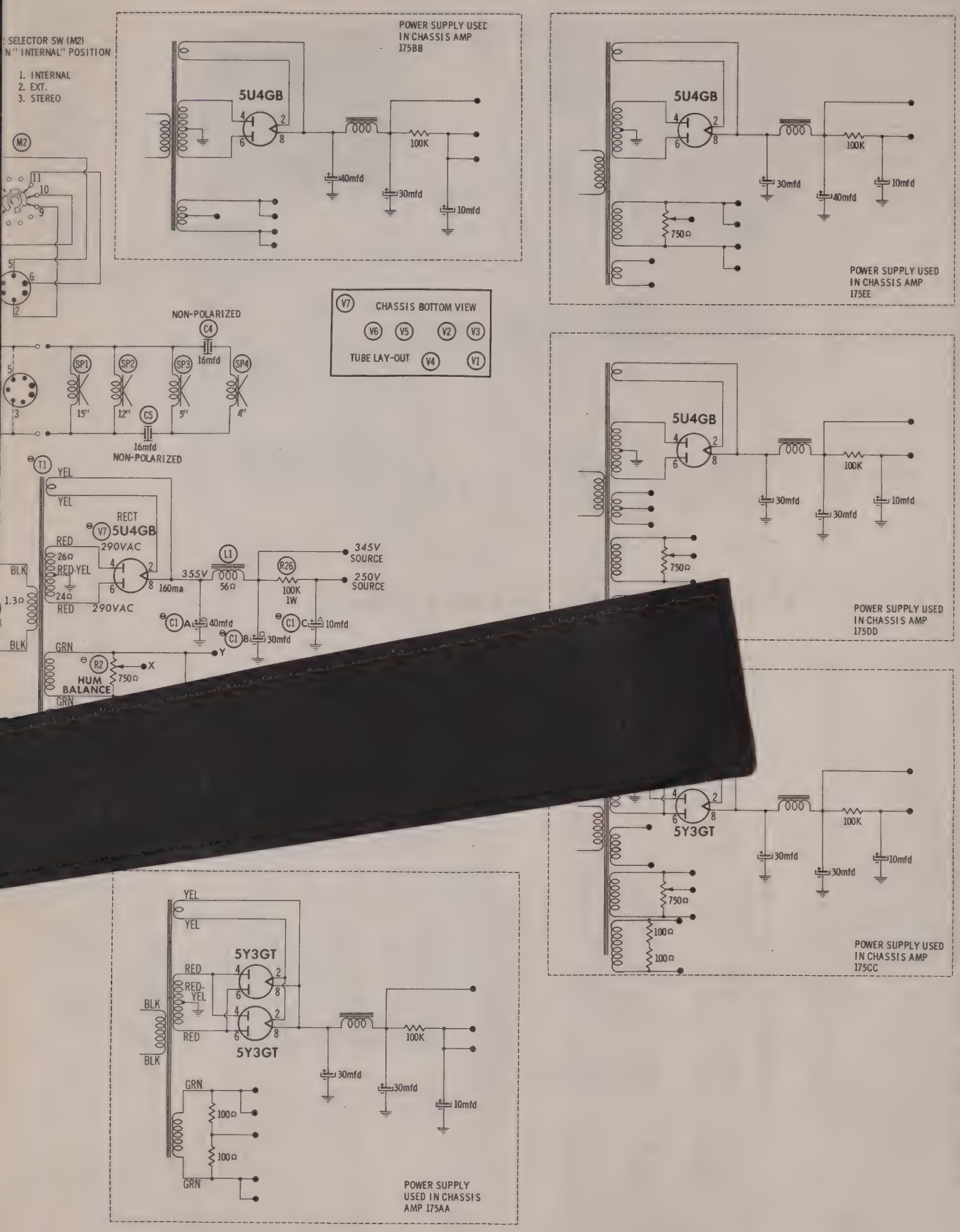
ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MAGNAVOX PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	15"	PM	4-6Ω	583975 ①	15A10LZ5.2 ①①	① Parallel and phase.
SP2	12"	PM	4-6Ω	583641 ①	12A6AZ5 ①	
SP3	5"	PM	3-4Ω	580038 ①	5A07 ①	
SP4	4"	PM	8-10Ω	583846 ①	4A1TZ9.2 ①	

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M1	Lamp		#44
M2	Switch	460917-6	Speaker Selector (3 Position, Rotary Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



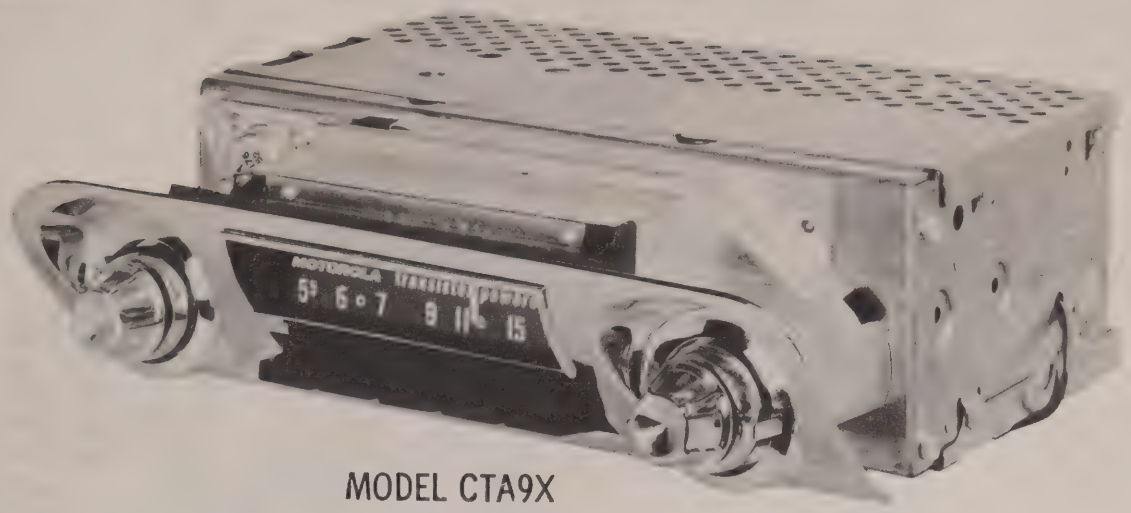
**MAGNAVOX CHASSIS AMP-175AA,
BB, CC, DD, EE, FF**

PHOTOFACT* Folder

EIA MEMBER

MOTOROLA MODELS BKA9X, CTA9X

MOTOROLA MODELS
BKA9X, CTA9X



MODEL CTA9X

TRADE NAME	Motorola Models BKA9X (For 1959 Buick Automobiles), CTA9X (For 1959 Chevrolet Automobiles)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated 4 Tube Custom Built AM Automobile Receiver with Transistorized Output
POWER SUPPLY	12 Volt Storage Battery — RATING 3 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540-1610KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A4 ..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A5, A6, A7 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A8, A9, A10 ..... GENERAL CEMENT #9050L, 9150
WALSCO #2521

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1mfd	High side to pin 7 (grid) of 12AD6 (V2). Low side to chassis.	262.5KC (400∿ Mod)	High Freq. end stop	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	Thru dummy antenna to antenna input.	1610KC	"	"	A5, A6, A7	"

Step 3 is not necessary unless tuner has been tampered with or associated component have been replaced. If necessary, remove dial scale and background to expose screws (A8, A9, A10). Back cores 7/16" out of coils. Repeat step 2.

3.	Fig. 1	Thru dummy to antenna receptacle.	1200KC	Tuner carriage 9/32" from high freq. end stop.	Across voice coil	A8, A9, A10	Adjust for maximum output. Repeat step 2 and 3 until no further improvement is noted. Cement tuning screws.

With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum output.

PUSHBUTTON ADJUSTMENT

1. Tune manually to desired station.
2. Pull button out; then press in firmly.
3. Repeat for remaining buttons.

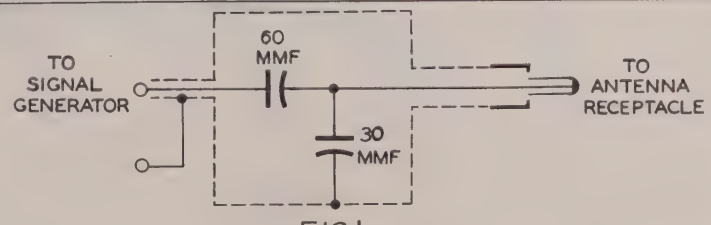


FIG. 1

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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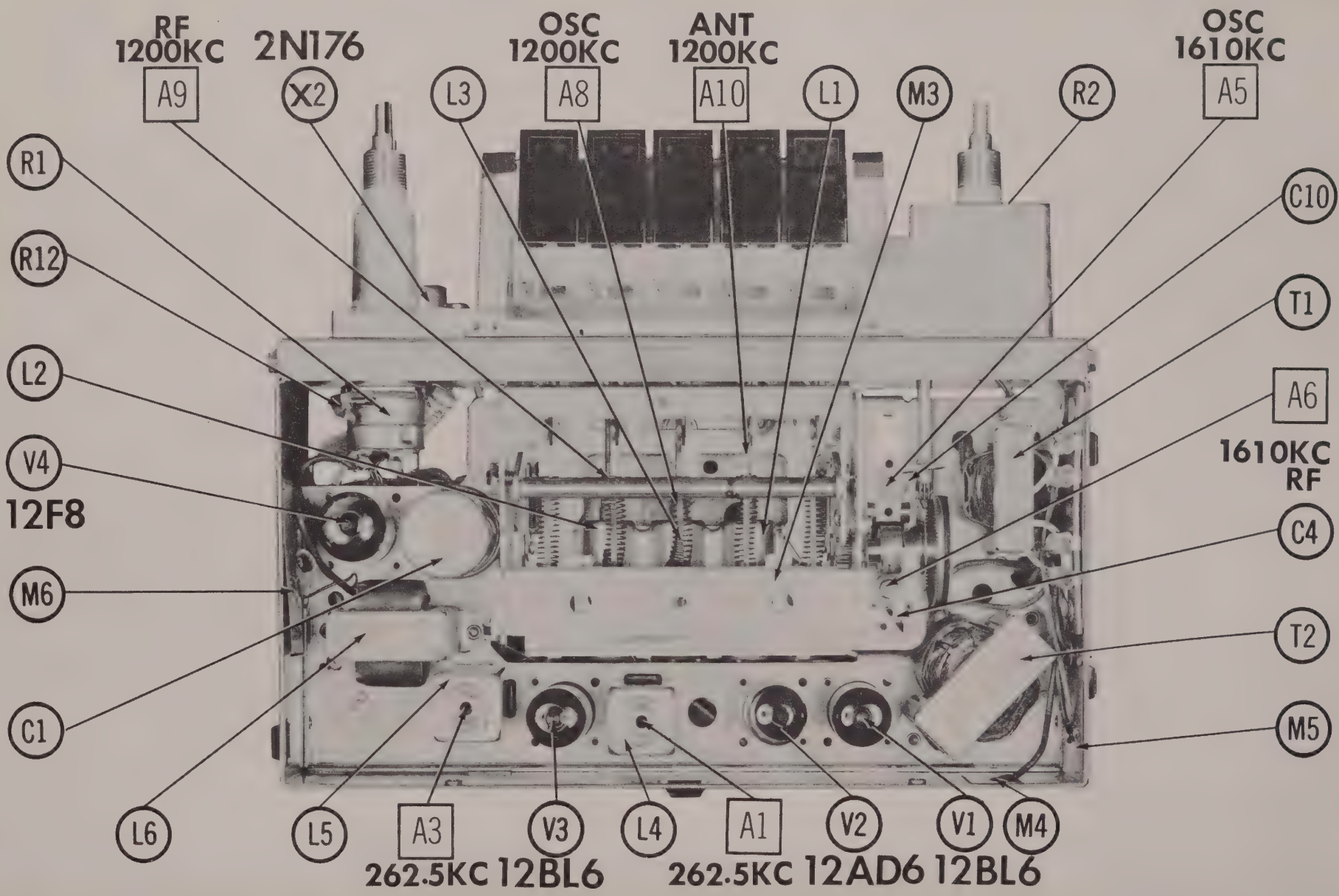
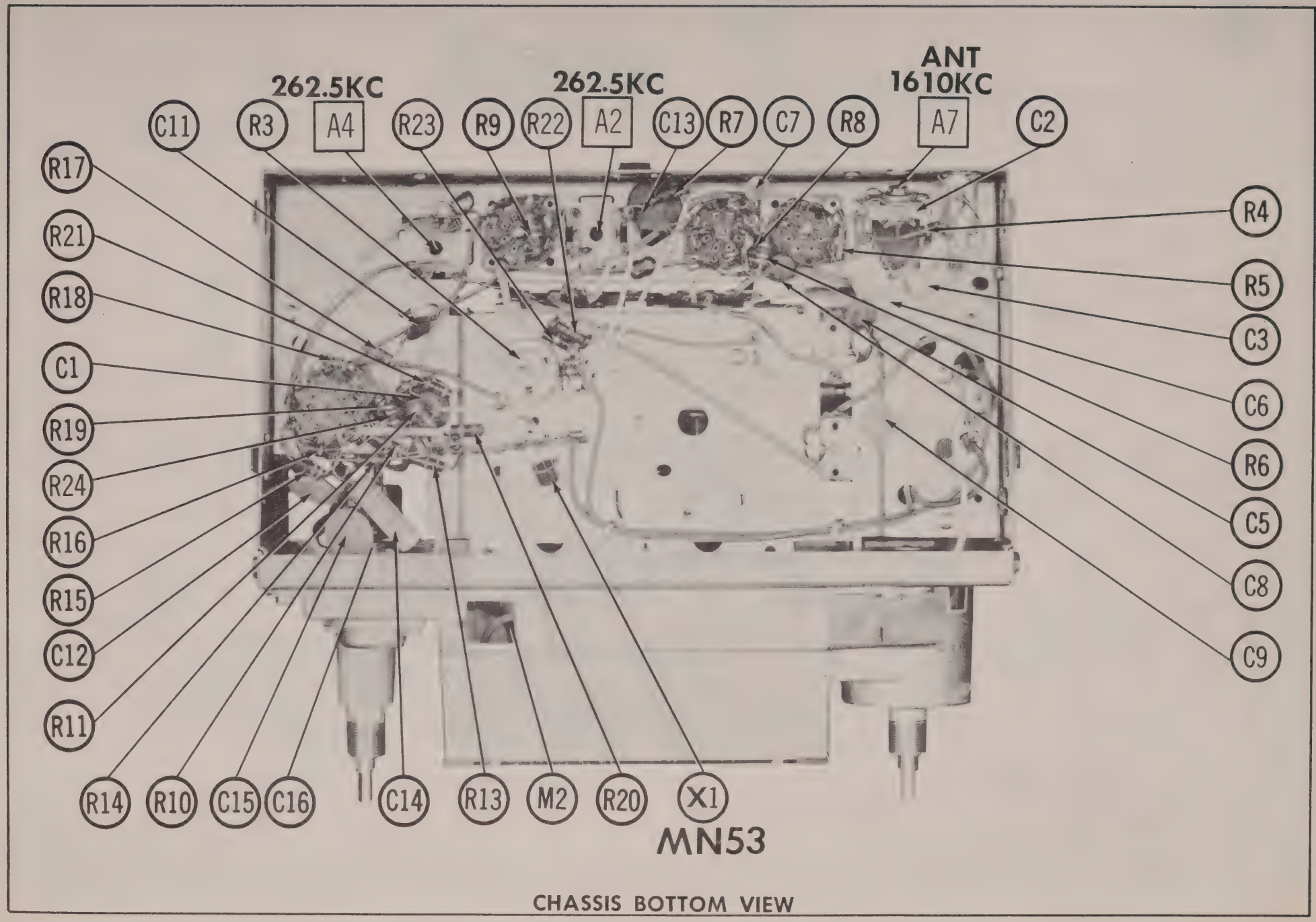
J215

SET 448 FOLDER 10



CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		MOTOROLA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Ant. Coil	24C535458 †						† Part of M3.
L2	RF Coil	24C535458 †						
L3	Osc. Coil	24C535456 †						
L4	Input IF	24B543286	16-6752	16-6752	BC-350	12-H2	RF-3	
L5	Output IF	24K543287	16-6754	16-6754	BC-354	12-H6		

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L6	3A	.3Ω	.010 Hy.	25B543338						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	24 :	1	25B543339 ①						① Part #25K543448 used in Model BKA9X

* TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	24Ω tap ⓐ 3-4Ω		25C542489①							① Part #25K543444 used in Model BKA9X.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5" x 9"	PM	3-4Ω	50C543343	69A3	Model CTA9X
	6" x 9"	PM	3-4Ω	50C543633		Model BKA9X

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1		10A 32V	65R10266					
		9A 32V	65R16248 ①					

① Used in Model BKA9X

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Lamp	65R533821	#1891
M3	Tuner	77D562114	(AT-267) Complete, Model CTA9X
	Tuner	77D561088	(AT-253) Complete, Model BKA9X
	Coil Assembly	1V561092	Includes L1, L2, L3 and Mounting Plate
M4	Spark Plate	64K561877	
M5	Spark Plate	64K561877	Not used in Model BKA9X
M6	Spark Plate	64K530177	

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36B542650	Tuning, Volume On-Off
Knob	36B543330	Tone, Speaker Model CTA9X
Knob	36B539078	Tone & Dummy, Model BKA9X
Pushbutton	38B543310	Model CTA9X
Pushbutton	1V543674	Model BKA9X
Cover	15C543303	Top and Bottom
Pointer	1V543358	Model CTA9X
Pointer	1V541387	Model BKA9X
Dial Scale	34B543372	Model CTA9X
Dial Scale	34B543620	Model BKA9X

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amp.	12BL6	
V2	Converter	12AD6	
V3	IF Amp.	12BL6	
V4	Det.-AVC-AF Amp.	12F8	

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	MN-53*	Driver			MN-53		PNP
X2	2N176	Output	2N155	2N176		2N176	PNP, Note 1

Note 1. When replacing, coat both sides of the insulator with DC-4 grease (Part #11M490487) or equivalent. Tighten mounting screws securely.
* Some versions may use 2N652 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	■500	16	23B543279	AFH3-00-95		WP300.85		TVLS-3026.8*	
B	▲500	16							
C	100	16							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	40-430			20A542758						
C3	.002	1000	10%	8R122291				GEM-1622	10TM-D2S 10% *	
C4	20-120			20K541014						
C5	47		N750 10%	21R114207	N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47S 10% *	
C6	.05	200		8R121005	P288N-05	DF-503	CUB2S5	GEM-215	2TM-S5	
C7	1500			21R120100	BPD-0015	DD-152	BYA10D15	B-215	5GA-D15	
C8	47		N750 10%	21R115593	N750-DI 47	DTN-47	C10Q47U	CN7-447	5TCU-Q47S 10% *	
C9	100		N750 10%	21R410036	N750-DI 100	DTN-100	C10T1U	CN7-310	5TCU-T1S 10% *	
C10	310-390			20K541700						
C11	27		NPO 10%	21R410089		TCZ-27	C10Q27C	CNO-427	5TCC-Q27S 10% *	
C12	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C13	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C14	.002	600		8R121568	P688N-002	DD-202	CUB6D2	GEM-622	6TM-D2	①
C15	10000			21R482726	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C16	25000			21K740806					5HK-S25	

① Model BKA9X may use .004mfd in this application (Part #8R121000).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	18C543337	F1-41		† QJ1997A	‡ UE3966-S	Tone, Note 1
B	2meg	½		R2-72				Volume, Tap ⓐ1meg, Note 1
C	Switch			KR-4				Power On-Off
R2	15Ω	½	18B543326					Fader, Note 2
R3	300Ω	1(WW)	18K543493		39-300 *		FL-500 *	Bias, Stop ⓐ36Ω, Note 3

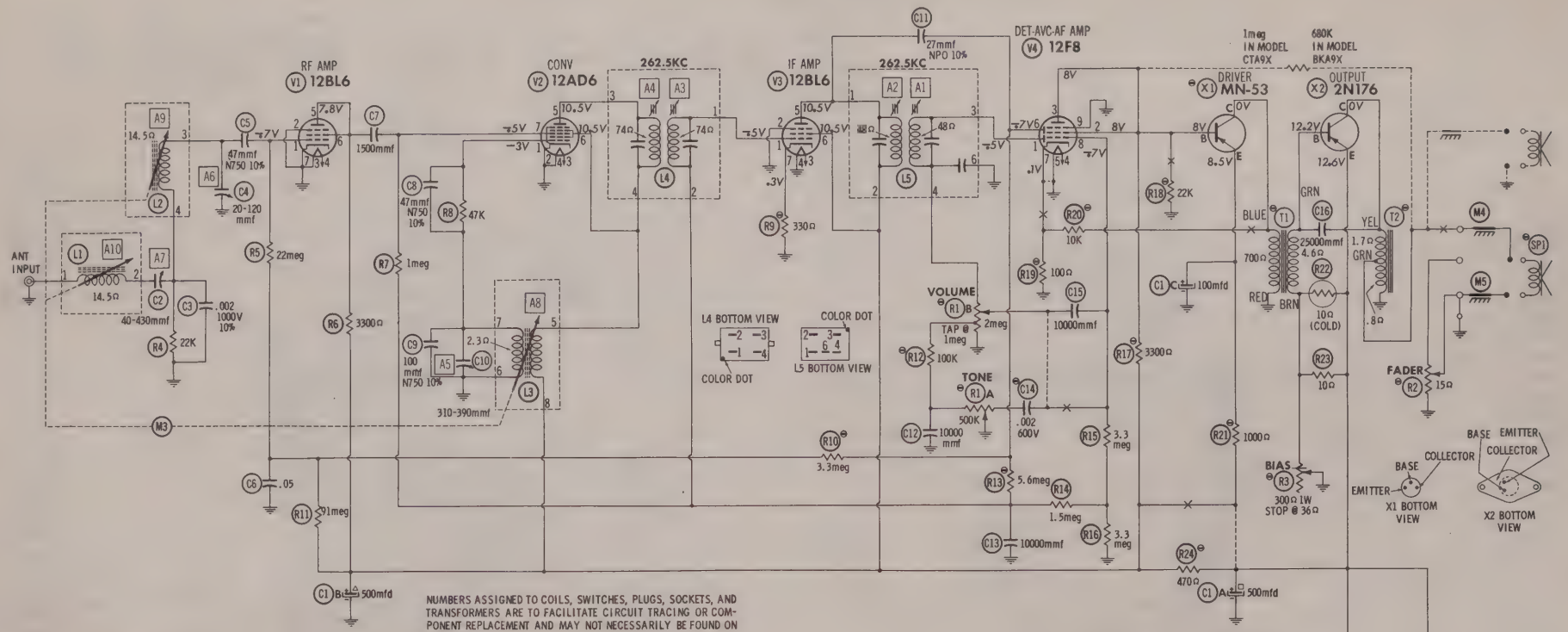
Note 1. Model 8KA9X uses Part #18C543650 or Part #18K541286 (R1B 1meg with 500K tap).
Note 2. Not used in Model BKA9X.
Note 3. Some versions may use 125Ω with 47Ω resistor in series (Part #18K542493). Replace with Part #18K543493.
* Use 36Ω resistor in series with terminal.
† "Concentrikit" Equivalent: K-6 Kit, with Base Elements & Shafts: B13-133, P13-214 (Panel)
B18-139X, R1-226 (Rear)
76-1 (Switch)
‡ "STA-LOC" Equivalent: FA55A, OS2437, RU26T16, IS2812, US41.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R4	22K		6K119405	
R5	22meg		6R118247	
R6	3300Ω		6K121725	
R7	1meg		6K124494	
R8	47K		6K121678	
R9	330Ω		6K127633	Note 1
R10	3.3meg		6K121278	Notes 2, 3
R11	91meg		6K538716	
R12	100K		6K122313	Note 4
R13	5.6meg		6K124761	Note 5
R14	1.5meg		6R6460	
R15	3.3meg		6K121278	
R16	3.3meg		6K119407	
R17	3300Ω		6K121725	Notes 6, 7
R18	22K		6K119405	Note 8
R19	100Ω			Note 8
R20	10K			Note 8
R21	1000Ω			Notes 9, 10
R22	10Ω COLD		6K540634	
R23	10Ω		6K124668	
R24	470Ω		6K127633	Note 11

Note 1. Some versions may use 470Ω in this application (Part #6K127633).
Note 2. Some versions may use 5.6meg in this application (Part #6K124761).
Note 3. Model BKA9X use 4.7meg in this application (Part #21R410036).
Note 4. Model BKA9X use 68K in this application.
Note 5. Model BKA9X use 3.3meg in this application (Part #6K121278).
Note 6. Some versions may use 820Ω in this application (Part #6K121302).
Note 7. Model BKA9X use 2700Ω in this application (Part #6K119926).
Note 8. Not used in some versions.
Note 9. Some versions may use 1200Ω in this application (Part #6K119925).
Note 10. Model BKA9X use 680Ω in this application (Part #6R6040).
Note 11. Some versions may use 560Ω in this application (Part #6K122802).



TRANSISTOR CURRENT ADJUSTMENT (R3)

1. Connect a 0-3 Amp. DC ammeter in series with receiver input power lead.
2. Remove Output transistor (X2) from its socket.
3. Turn receiver on and adjust input voltage to 12.6VDC.
4. Note ammeter reading (approximately 800MA).
5. Turn receiver off and replace transistor. (See transistor note)
6. Turn receiver on and adjust R3 for a meter reading 360MA higher than noted in step 4.

If a power source of 14VDC is used, the current should be 440MA higher than noted in step 4.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BL6	35meg	0Ω	0Ω	2.2Ω	†3800Ω	†3800Ω	0Ω		
V2	12AD6	47K	0Ω	2.2Ω	0Ω	†544Ω	†470Ω	5.8meg		
V3	12BL6	4meg	0Ω	2.2Ω	0Ω	†520Ω	†470Ω	330Ω		
V4	12F8	1meg	†2800Ω	†2800Ω	2.2Ω	0Ω	8meg	100Ω	6.6meg	0Ω

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.
† MEASURED FROM POSITIVE TERMINAL OF C1A.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

❸ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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MOTOROLA MODELS BKA9X, CTA9X

PHOTOFACT* Folder

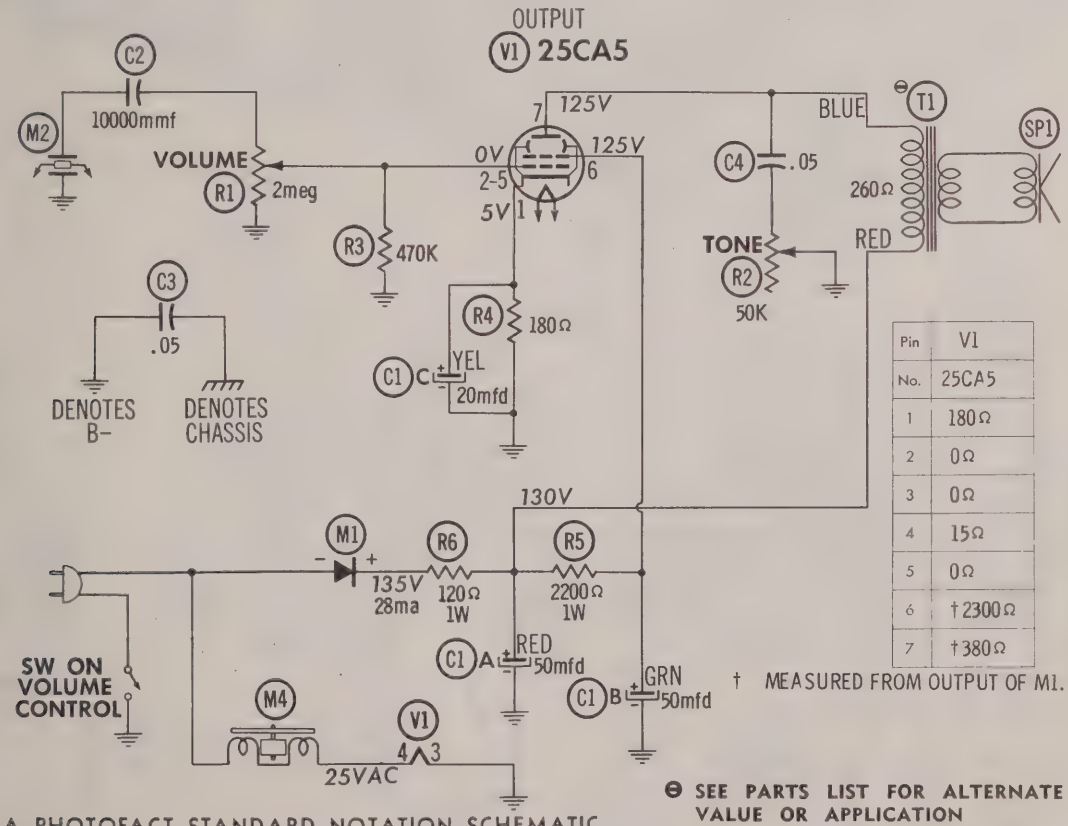
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

MOTOROLA MODELS 2F11B, -1, 2F11R (Ch. HS-666)

MOTOROLA MODELS 2F11B, -1, 2F11R (Ch. HS-666)

MODEL 2F11B-1

TRADE NAME	Motorola Models 2F11B, 2F11B-1, 2F11R (Ch. HS-666)
MANUFACTURER	Motorola, Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated One Tube Phono Amplifier with 4 Speed Manual Record Player
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 48 Watts, .45 Amp. @ 117 Volts AC (Less Motor)



Pin No.	V1 25CA5
1	180Ω
2	0Ω
3	0Ω
4	15Ω
5	0Ω
6	†2300Ω
7	†380Ω

† MEASURED FROM OUTPUT OF M1.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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SET 448 FOLDER 11

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25CA5	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	23B641503	PRS150/25 V5050/20	BBRT5515C	WT217	TDLT-18	TVLS-3430.1*	
B	50	150							
C	20	25							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	10000			21R121946	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C3	.05	400		8K125147	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	
C4	.05	400		8R121567	P488N-05	DF-503	CUB4S5	GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2meg	1/2	18A641418					Volume & Switch
R2	50K	1/2	18A641419					Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R3	470K		6K121279	
R4	180Ω		6K128952	

ITEM No.	RATING		MOTOROLA PART No.	NOTES
	OHMS	WATT		
R5	2200Ω	1	6R6290	
R6	120Ω	1	6R488021	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3600Ω	6-8Ω	25K641497	24S60 ①	A-2900①	AU-608 ①	A-2203 ①	24S60 ①	S-51X ①	① Drill new mounting hole. ② Alternate Part Number.
	3600Ω	6-8Ω	25B639195 ②	24S60 ①	A-2900①	AU-608 ①	A-2203 ①	24S60 ①	S-51X ①	

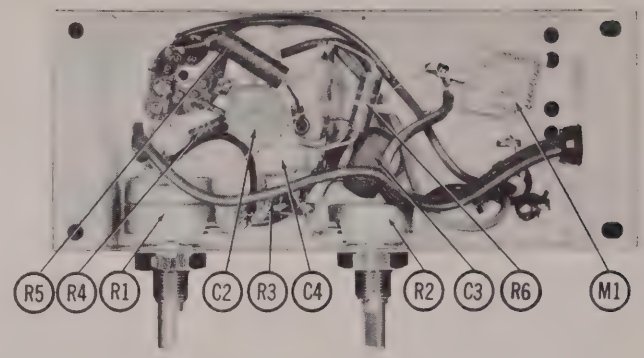
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	5"	PM	6-8Ω	50K641622	5A1Z6.1	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	MOTOROLA PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.028A	48K641469 ①	1234AH ① HA154 ②	TO65 ① SD-94 ②	65A ① K200 ②		① Selenium Type. ② Silicon Type.

CHASSIS-BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA						REMARKS
	MOTOROLA PART No.	ASTATIC PART No.		JENSEN PART No.			
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE		
M2	59B641411 †	420-TS-TE	N8-1 & N8-3				† Includes needles * Tone Arm Complete with Cartridge
		K314-T *					

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	MOTOROLA PART No.	JENSEN PART No.	WALCO PART No.	
M3	47K638905 (78RPM)			
	47K638904 (LP)			

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M4	Motor Ass'y.	1V642956	Includes Turntable Assembly and Speed Indicator Plate, Model 2F11B
	Motor Ass'y.	1V642957	Includes Turntable Assembly and Speed Indicator Plate, Model 2F11R

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	36B641412	Volume On-Off, Red
Knob	36K641413	Tone, Blue
Knob	36K641402	Cartridge Turnover (Less Setscrew #3K641403)
Cabinet	1V641436	Assembly, Blue & White, Model 2F11B
Cabinet	1V641437	Assembly, Red & White, Model 2F11R
Handle	55K639188	White

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

NEWCOMB MODEL E-25M

NEWCOMB MODEL E-25M

NEWCOMB MODEL E-25M

TRADE NAME	Newcomb Models E-25M, E-25MP
MANUFACTURER	Newcomb Audio Products Co., 6824 Lexington Ave., Hollywood 38, California
TYPE SET	AC-Battery Operated 7 Tube Audio Amplifier (Model E-25MP Has Manual Record Player)
POWER SUPPLY	110-120 Volts AC (Or) 6 Volt Storage Battery
RATING	105 Watts, 1 Amp. @117 Volts AC (Or) 17 Amp. @6.3 Volts DC

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1959 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

J98

SET 448 FOLDER 12

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mike Preamplifier	ECC83/ 12AX7	
V2	AF Amplifier	6SJ7	
V3	AF Amp. -Phase Inv.	6J5	
V4	Output	6L6GB	
V5	Output	6L6GB	
V6	Rectifier	6X5GT	
V7	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	NEWCOMB PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲20	475	CE-30	AFH4-19-10	D0179	FP474.5		TVLS-4825*	
B	■10	475							
C	▲10	475							
D	25	50							
C2	8	500		PRS500V8	BR850	TC82	TMS-66	TVA-1902	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	NEWCOMB PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	*SPRAGUE PART No.	
C3	.02	600			P688N-02	DD-203	ST6S2	GEM-612	6TM-S2	
C4	.02	600			P688N-02	DD-203	ST6S2	GEM-612	6TM-S2	
C5	.02	600			P688N-02	DD-203	ST6S2	GEM-612	6TM-S2	
C6	.02	600			P688N-02	DD-203	ST6S2	GEM-612	6TM-S2	
C7	.02	600			P688N-02	DD-203	ST6S2	GEM-612	6TM-S2	
C8	.002	600			P688N-002	DD-202	ST6D2	GEM-622	6TM-D2	
C9	20000				BPD-02	DD-203	BYB6S2	B-120	5GA-S2	①
C10	.1	400			P488N-1	DF-104	ST4P1	GEM-401	4TM-P1	
C11	.05	600			P688N-05	DF-503	ST6S5	GEM-615	6TM-S5	
C12	.05	600			P688N-05	DF-503	ST6S5	GEM-615	6TM-S5	
C13	3000				1467-003	DD-302	1W5D3	MC461	1FM-23	
C14	3000				1467-003	DD-302	1W5D3	MC461	1FM-23	
C15	.5	400			P488N-5		ST4P5	GEM-405	4TM-P5	
C16	.04	2000								②
C17	2.0	600			JP630M-2.0		DYR6200		BP-206	

① Some versions may use 50000mmf in this application.
② Metalized unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	NEWCOMB PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	RV-52	B-77	A47-2meg-S	Q17-140	U56	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KR-2	SWE-20	76-2	US-27	
R2A	1meg	½	RV-83 *	BT-71	A47F5-1meg	QVC-539X	UT-443	Chan. 1, Tap@500K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	RV-41	B-60	A47-500K-Z	Q13-132	U48	Chan. 2
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

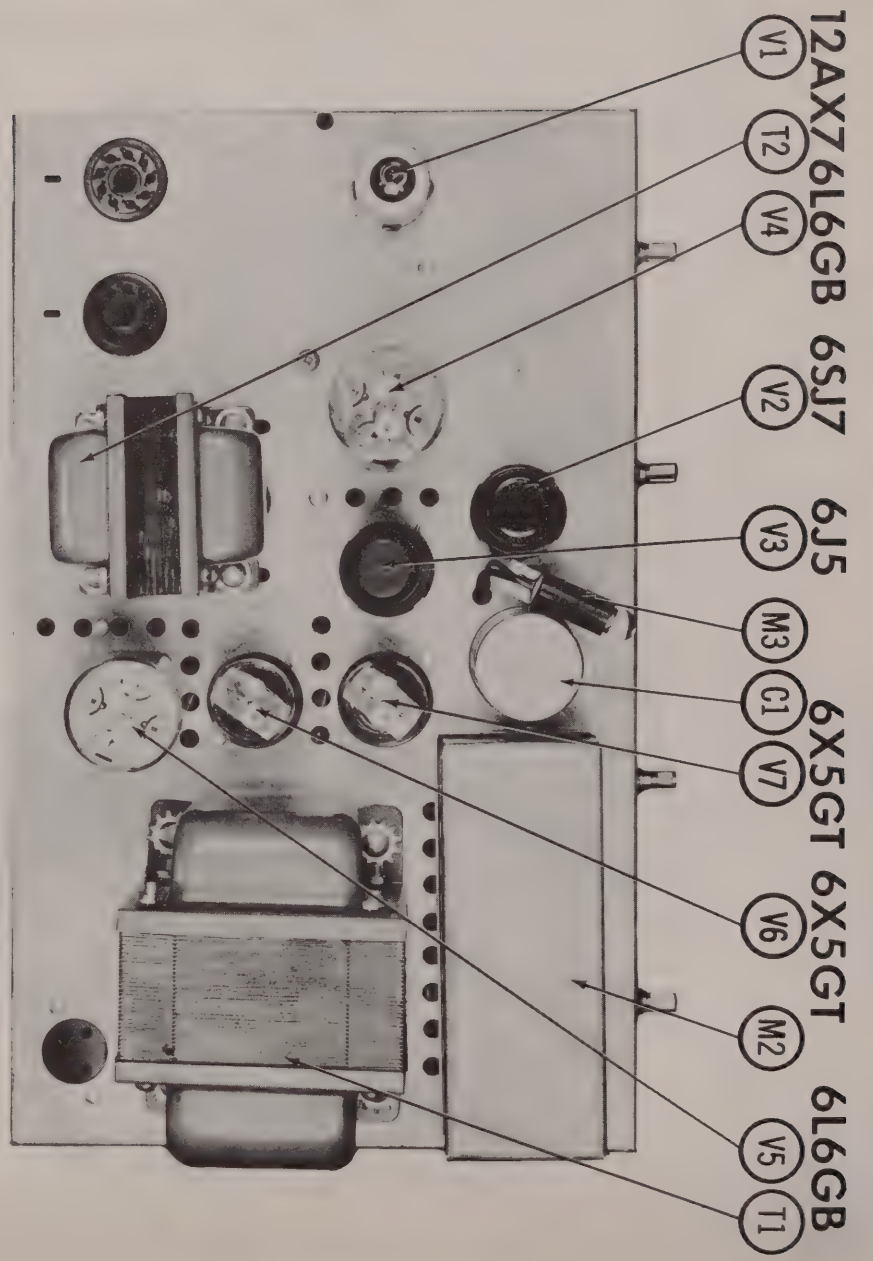
* Some versions may use Part #RV-42 in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		NEWCOMB PART No.	NOTES
	OHMS	WATT		
R4	18meg			
R5	18meg			
R6	560K			
R7	560K			
R8	330K			
R9	330K			
R10	10meg			
R11	560K			
R12	3.3meg			
R13	100Ω			
R14	100K			
R15	560K			
R16	100K			
R17	5600Ω			
R18	100K			
R19	270K			
R20	270K			
R21	5000Ω	5		
R22	250Ω	5		
R23	56K			
R24	56K			
R25	100Ω			
R26	100Ω			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	AC OPERATION			NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
	PRI.	SEC. 1	SEC. 2							
T1	117V @ 1A	720 VCT @ .140A	7 VCT Not used Tap @ 6.3V @ 4.3A	TR-124						
	DC OPERATION									
	6 VCT @ 10A Tap @ 5V Not Used	720 VCT @ .140A	115V							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	NEWCOMB PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5200Ω CT	500Ω Tap @ 70V 60Ω, 8Ω, 4Ω	TR-188	22S70 ①				22S70 ①		① Use 250Ω Tap For 70V Line.

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				NEWCOMB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	6VB6	6	60~	VA-6	6VB6		6VB6	

MISCELLANEOUS

ITEM No.	PART NAME	NEWCOMB PART No.	NOTES
M3 M4	Lamp Switch		#51 Battery Standby On-Off, SPST

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			NEWCOMB PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1 6/10A 125V S/B			31301.6 (1 6/10A 125V S/B)	357001	MDL1	4406

CABINETS & CABINET PARTS

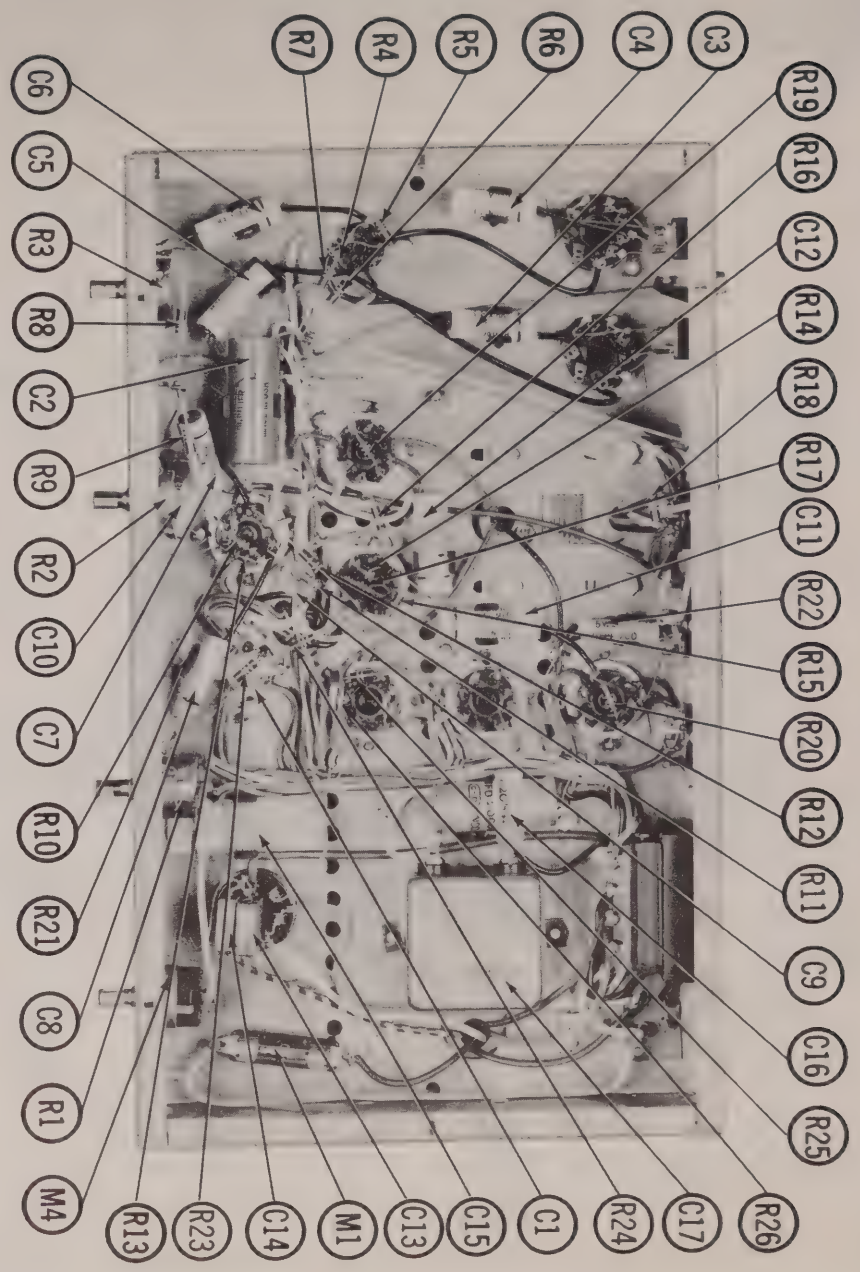
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

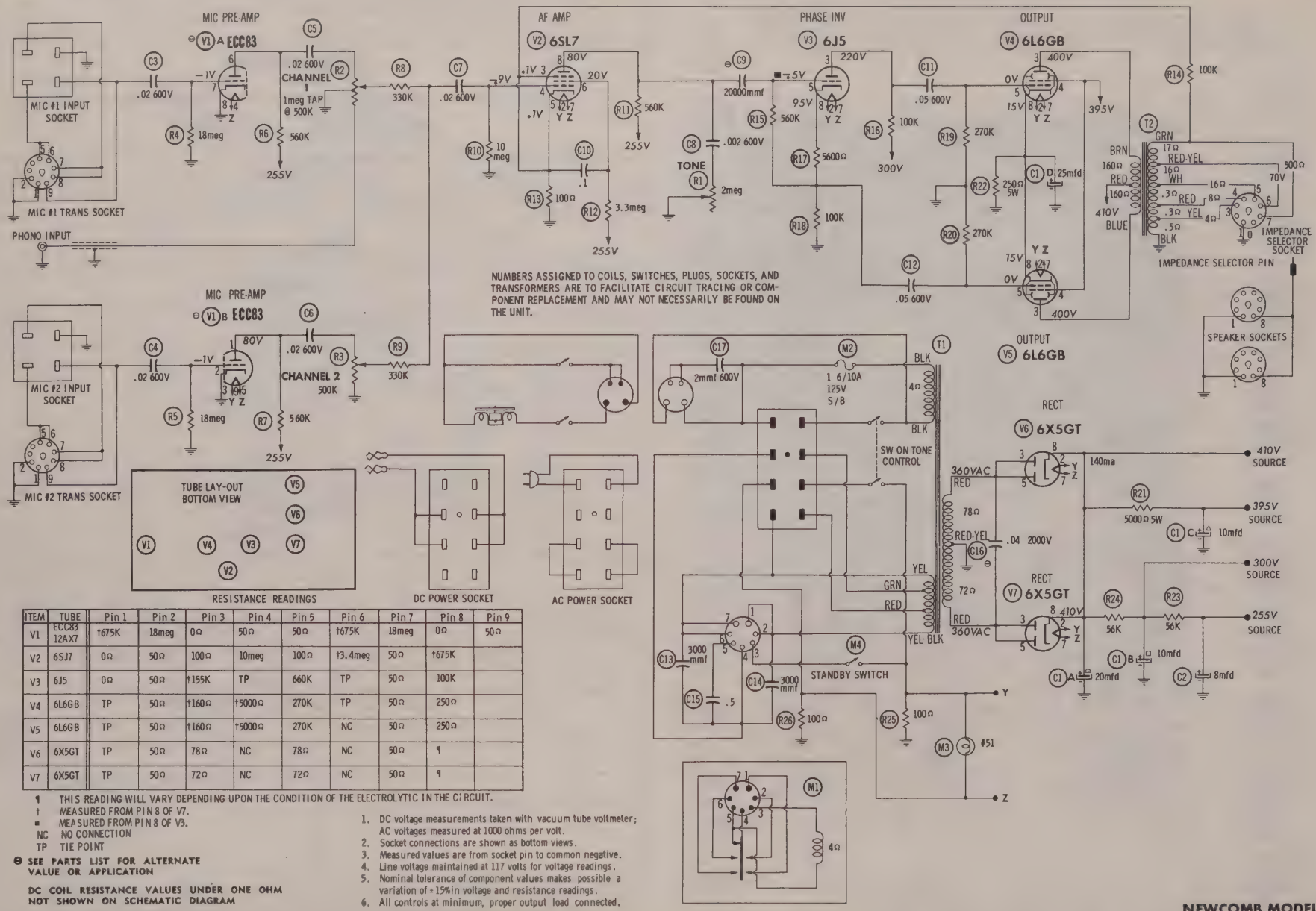
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

CHASSIS-BOTTOM VIEW





ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC83 12AX7	†675K	18meg	0Ω	50Ω	50Ω	†675K	18meg	0Ω	50Ω
V2	6SJ7	0Ω	50Ω	100Ω	10meg	100Ω	†3.4meg	50Ω	†675K	
V3	6J5	0Ω	50Ω	†155K	TP	660K	TP	50Ω	100K	
V4	6L6GB	TP	50Ω	†160Ω	†5000Ω	270K	TP	50Ω	250Ω	
V5	6L6GB	TP	50Ω	†160Ω	†5000Ω	270K	NC	50Ω	250Ω	
V6	6X5GT	TP	50Ω	78Ω	NC	78Ω	NC	50Ω	¶	
V7	6X5GT	TP	50Ω	72Ω	NC	72Ω	NC	50Ω	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 8 OF V7.
■ MEASURED FROM PIN 8 OF V3.
NC NO CONNECTION
TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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NEWCOMB MODEL E-25M

PHOTOFACT* Folder

SYLVANIA MODEL 4801 (Ch. 1-626-1, -2, 1-627-1)

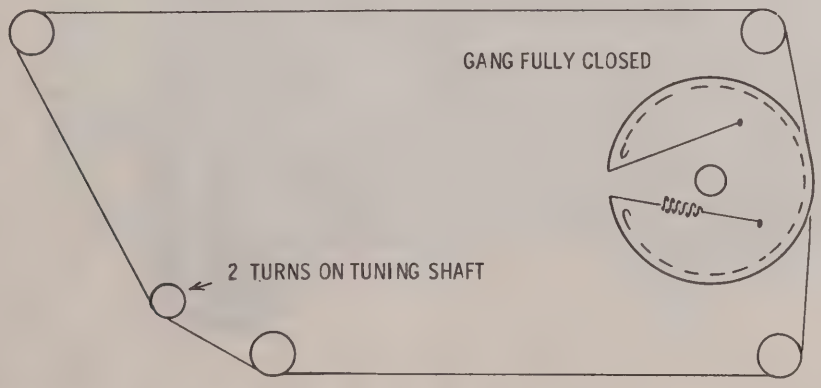
SYLVANIA MODEL
4801 (Ch. 1-626-1, -2, 1-627-1)

SYLVANIA MODEL
4801 (Ch. 1-626-1, -2, 1-627-1)

TRADE NAME	Sylvania Model 4801 (Receiver Chassis 1-626-1 or 1-626-2, Tape Amp. 1-627-1)		
MANUFACTURER	Sylvania Home Electronics, Div. of Sylvania Electric Products Inc., 700 Ellicott St., Batavia, N. Y.		
TYPE SET	AC Operated 11 Tube FM-AM Receiver With 4 Speed Automatic Record Changer and 4 Tube Tape Recorder		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	130 Watt, 1.33 Amp. @117 Volts AC (FM)
TUNING RANGE BROADCAST	535-1620KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SYLVANIA 1-318-3 — PHOTOFACT SET 401 FOLDER 13.
FOR SERVICE INFORMATION ON TAPE TRANSPORT UNIT — SEE SYLVANIA 1-400-1 — PHOTOFACT SET 404 FOLDER 10

DIAL CORD STRINGING



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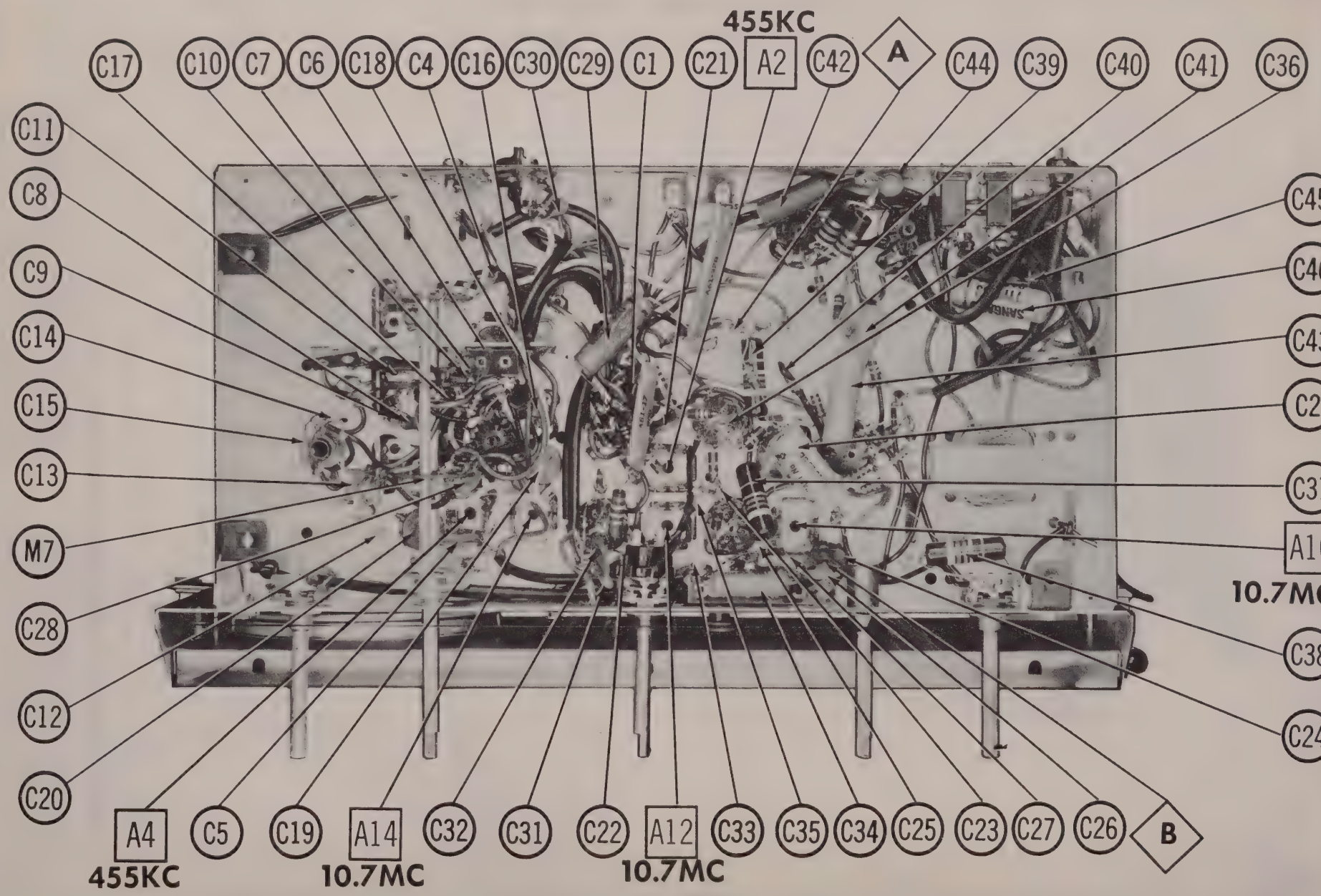
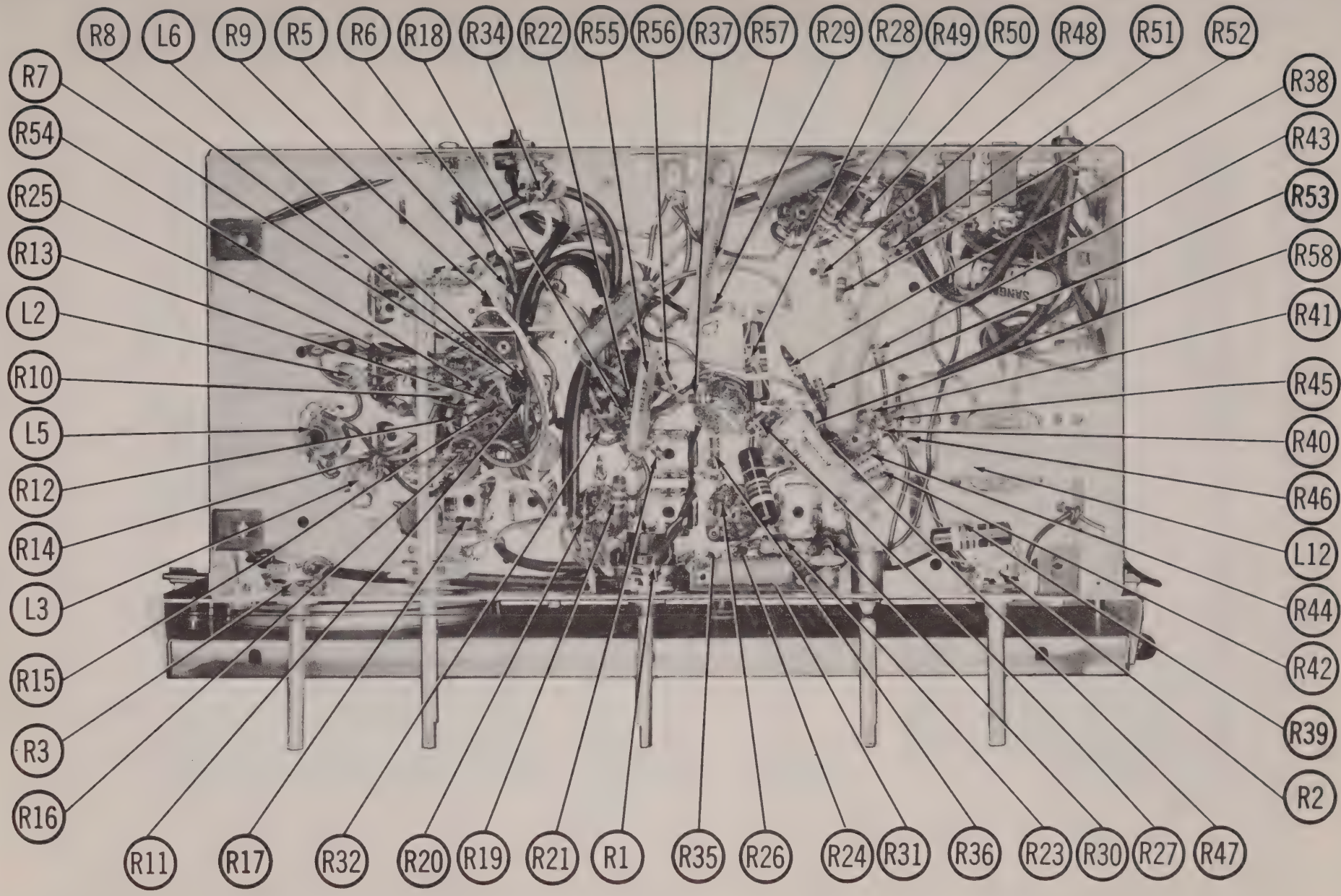


RADIO CHASSIS BOTTOM VIEW - CAPACITOR, MISC. & ALIGNMENT IDENT.



RADIO CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested alignment tools:

A1 thru A4, A10 thru A15.....	GENERAL CEMENT #5097, 8727 WALSCO #2515
A5, A7, A9, A16, A17, A18,.....	GENERAL CEMENT #5004, 5008, 5009 WALSCO #2520
A6, A8.....	GENERAL CEMENT #8606, 8606L, 8282, 9295 WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1mfd.	High side to AM RF Stator lug of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	1620KC	"	1620KC	"	A5	"
3.	"	"	535KC	"	535KC	"	A6	"
4.	"	High side to AM antenna terminal. Low side to chassis.	1400KC	"	1400KC	"	A7	"
5.	"	"	600KC	"	600KC	"	A8	"
6.		Loop	1400KC	"	1400KC	"	A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR & VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	.005mfd.	High side to FM RF Stator lug of tuning gang. Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A10, A11, A12, A13, A14	Adjust for maximum deflection.
8.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓐ.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	.005mfd.	High side to FM RF Stator lug of tuning gang. Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A10, A11, A12, A13, A14	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
8.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A15	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	.005mfd.	High side to FM RF Stator lug of tuning gang. Low side to chassis.	108.5MC (Unmod.)	FM	108.5MC	DC probe to point Ⓐ. Low side to chassis.	A16	Adjust for maximum deflection.
10.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	106MC	"	106MC	"	A17, A18	"
	The following step is necessary only if receiver does not track properly over entire FM Band.							
11.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	88MC	FM	88MC	DC probe to point Ⓐ. Low side to chassis.	L3	Adjust for maximum deflection by compressing or expanding coil turns while rocking tuning gang. Repeat steps 9, 10 and 11, until optimum results are obtained.

FIG. 1

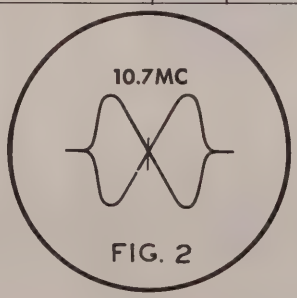
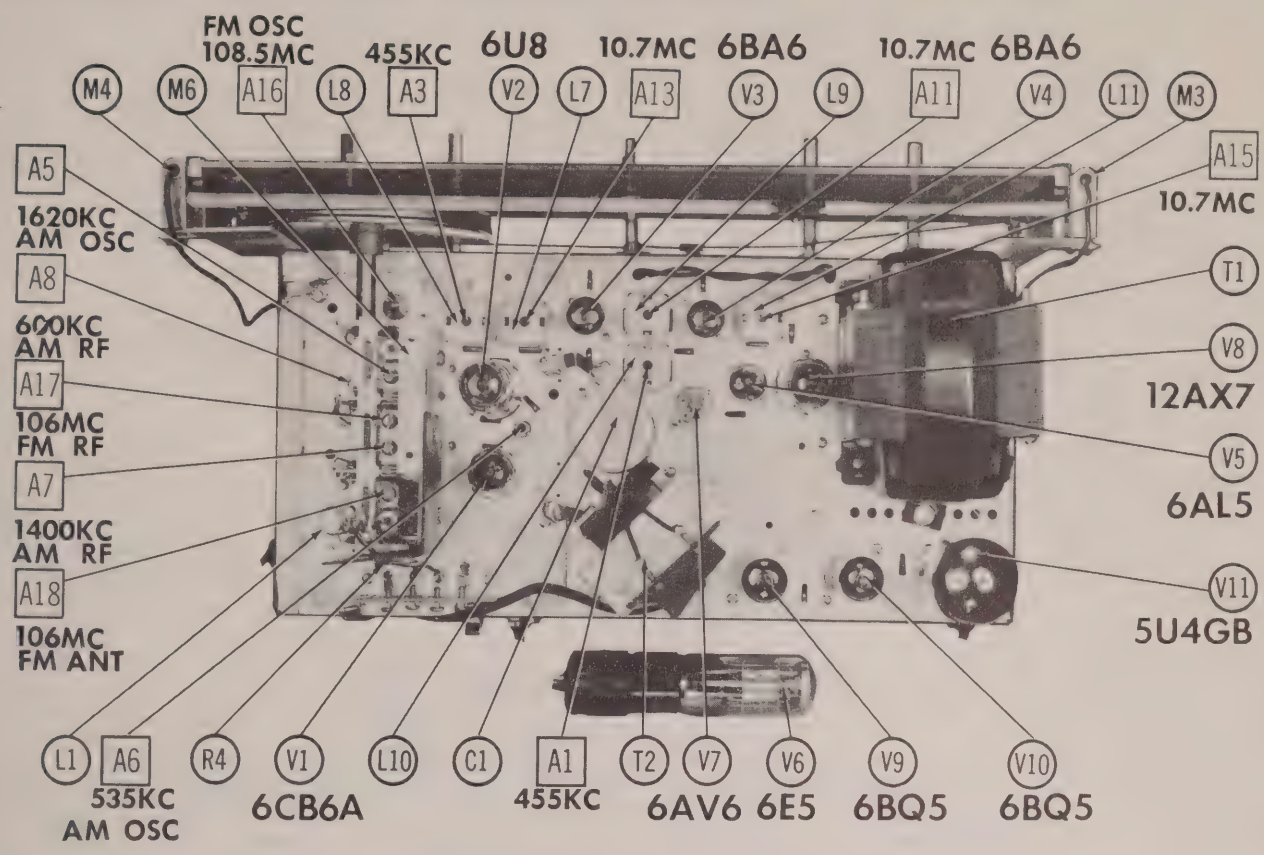
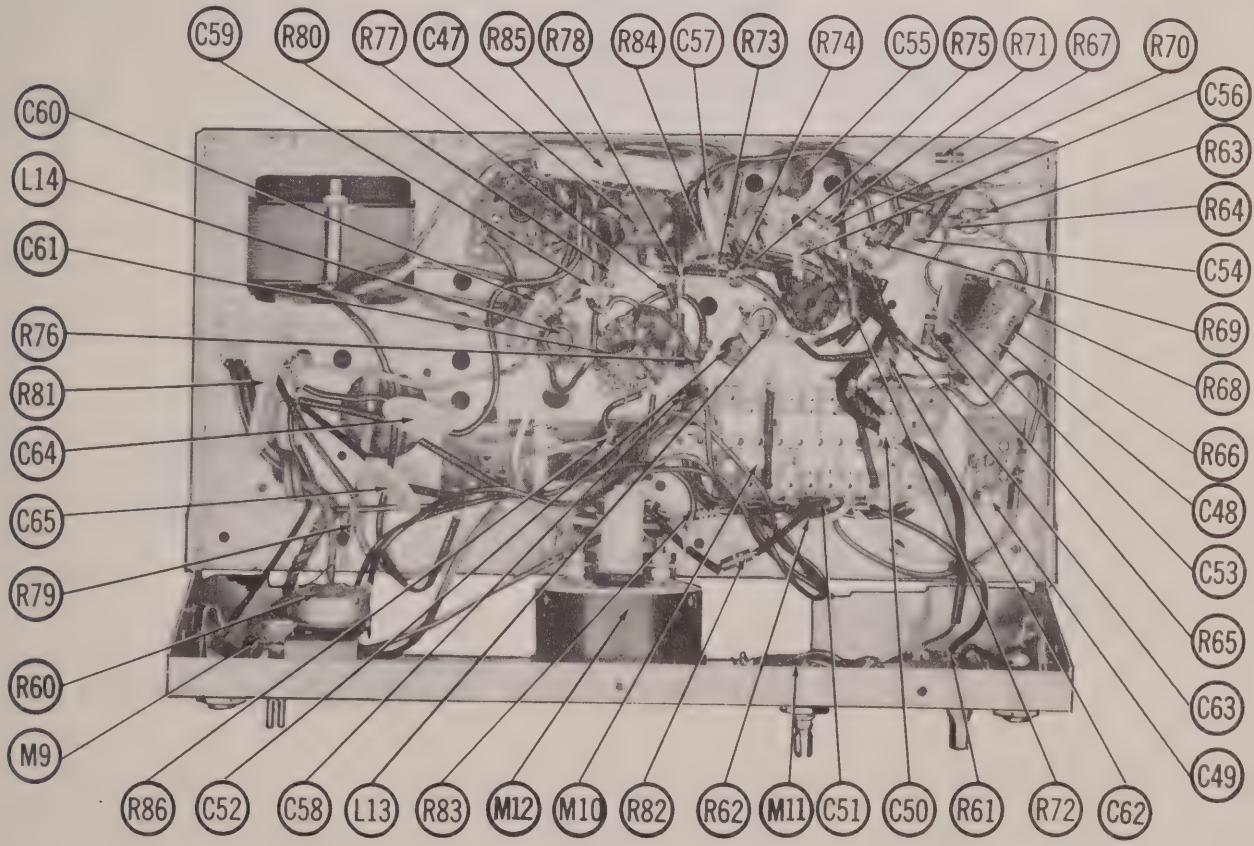


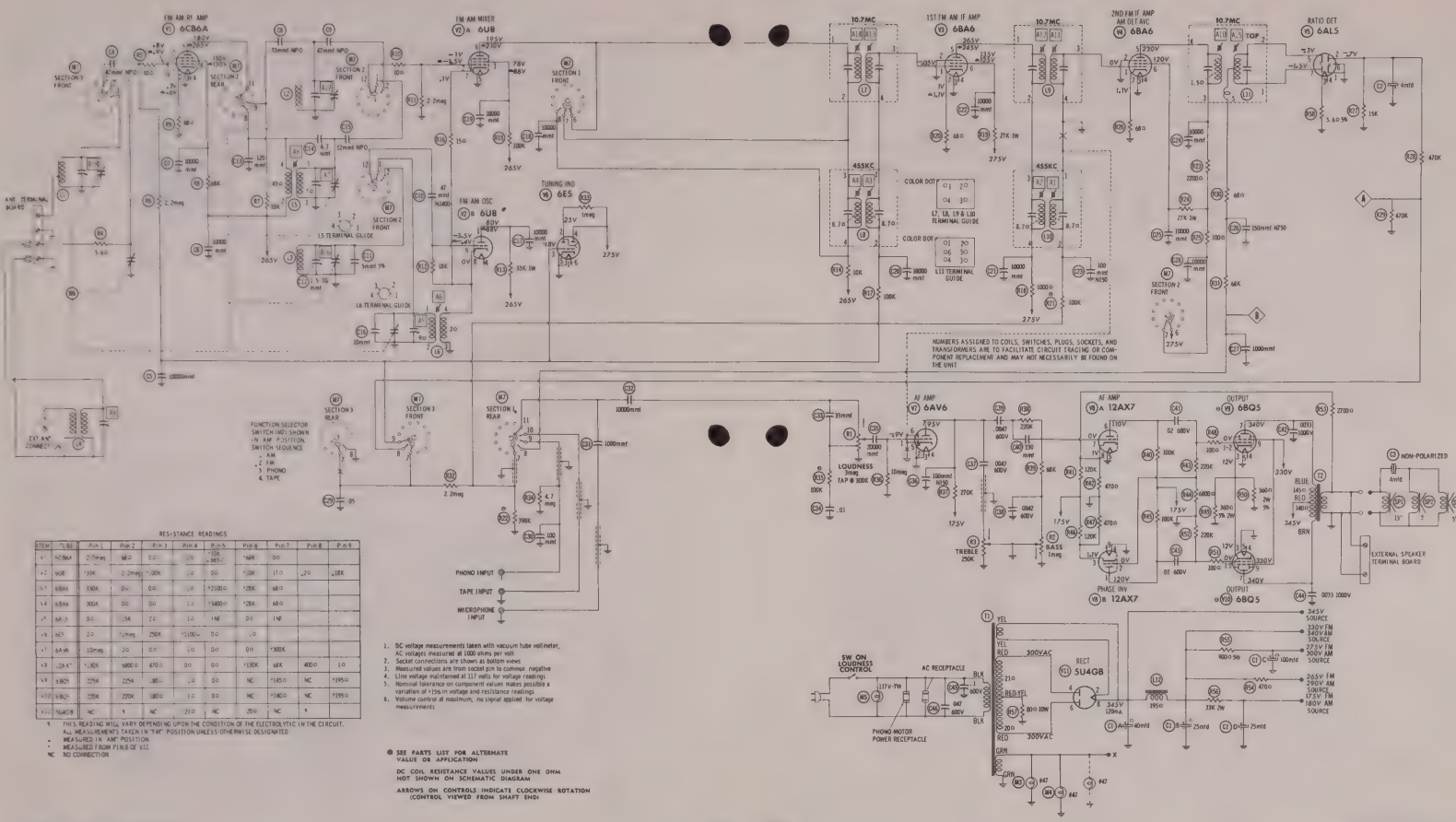
FIG. 2



RADIO CHASSIS - TOP VIEW



TAPE AMPLIFIER CHASSIS - BOTTOM VIEW



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6A	270meg	560	0Ω	1Ω	10K + 365Ω	*68K	0Ω		
V2	6U8	*33K	2.2meg	*100K	1Ω	0Ω	*120K	17Ω	2Ω	18K
V3	6BA6	330K	0Ω	0Ω	1Ω	*21000Ω	*25K	68Ω		
V4	6BA6	300K	0Ω	0Ω	1Ω	*14000Ω	*28K	68Ω		
V5	6AL5	0Ω	15K	2Ω	1Ω	INF	0Ω	INF		
V6	6E5	2Ω	1meg	250K	*1100Ω	0Ω	1Ω			
V7	6AV6	10meg	2Ω	0Ω	1Ω	0Ω	0Ω	*300K		
V8	12AX7	*1.3M	4800Ω	470Ω	0Ω	0Ω	*130K	68K	400Ω	1Ω
V9	6BQ5	225K	225K	380Ω	1Ω	0Ω	NC	*145Ω	NC	*195Ω
V10	6BQ5	220K	220K	380Ω	1Ω	0Ω	NC	*140Ω	NC	*195Ω
V11	5U4GB	NC	¶	NC	2Ω	NC	2Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
- MEASURED IN "AM" POSITION
- MEASURED FROM PIN 8 OF V11
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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SYLVANIA MODEL
4801 (Ch. 1-626-1, -2, 1-627-1)

RADIO SCHEMATIC

RADIO PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amp.	6CB6A	
V2	FM AM Mixer-FM AM Osc.	6U8	
V3	1st FM-AM IF Amp.	6BA6	
V4	2nd FM IF Amp. -AM Det. -AVC	6BA6	
V5	Ratio Detector	6AL5	
V6	Tuning Indicator	6E5	

ITEM No.	USE	TYPE	NOTES
V7	AF Amplifier	6AV6	
V8	AF Amp. -Phase Inv.	12AX7	
V9	Output	6BQ5	(EL84) *
V10	Output	6BQ5	(EL84) *
V11	Rectifier	5U4GB	

* Alternate type

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	350	161-4025	AFH4-05-70	B0046	FP420.39		TVLS-4635.11*	
B	25	350			BR3035				
C	100	350							
D	25	350							
C2	4	50	161-1008	PRS150V4	BBR4-50	TT50X4	TD-4-50	TVA-1402	
C3	4	150NP	161-1044	NP-PRS450V4	BBR8-150 †	TC510	TD-8-150 †	TVAS-1402.1*	
					BBR8-150		TD-8-150		

† Connect negative leads together.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	47		NPO		NPO-SI 47	TCZ-47	C10Q47U	CNO-447	5TCC-Q47	
C5	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C6	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C8	33		NPO		NPO-SI 33	TCZ-33	CTA6Q33C	ZT-5433	5TCC-Q33	
C9	47		NPO		NPO-SI 47	TCZ-47	CTA6Q47C	CNO-447	5TCC-Q47	
C10	47		N1400							
C11	5		5%						5GA-V5S 5%*	
C12	1.5-10			172-0040		829-10				
C13	120				SI 120	D6-121	LT6T12	UC-5312	5GA-T12	
C14	4.7				NPO-SI 4.7	TCZ-4R7		ZT-5547	5TCCB-V47	
C15	12		NPO			TCZ-12		CNO-412		
C16	10				SI 10	TCZ-10	LT6Q10	ZT-541	5GA-Q1	
C17	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C18	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C19	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C20	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C21	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C22	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C23	100		N150							
C24	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C25	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C26	150		N750		N750-D1 150	TCN-150	C10T15U	CN7-315	5TCU-T15	
C27	1000				SI 1000	D6-102	LT6D1	UC-521	5HK-D1	
C28	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C29	.05	200			P288N-05	DF-503	CUB2S5	GEM-215	2TM-S5	
C30	100				BPD-0001	DD-101	L10T1	UC-310	5GA-T1	
C31	1000				BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C32	10000				BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C33	33				SI 33	D6-330	LT6Q33	UC-5433	5GA-Q33	
C34	.01	400			P488N-01	DD-103	CUB4S1	GEM-411	4TM-S1	
C35	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C36	100		N150							

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C37	.0047	600			P688N-0047	DD-472	CUB6D47	GEM-6247	6TM-D47	
C38	.0047	600			P688N-0047	DD-472	CUB6D47	GEM-6247	6TM-D47	
C39	.0047	600			P688N-0047	DD-472	CUB6D47	GEM-6247	6TM-D47	
C40	330				BPD-00033	DD-333	L10T33	B-333	5GA-T33	
C41	.02	600			P688N-02	DD-203	CUB6S2	GEM-6S2	6TM-S2	
C42	.0033	1000			P1088N-0033	DD-332	CUB10D3	GEM-1023	10TM-D3	
C43	.02	600			P688N-02	DD-203	CUB6S2	GEM-612	6TM-S2	
C44	.0033	1000			P1088N-0033	DD-332	CUB10D3	GEM-1023	10TM-D3	
C45	.1	600			P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C46	.047	600			P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3meg	½	152-0049				UT461	Loudness. Tap @ 300K
B	Switch						Not Req.	Push Type
R2A	1meg	½	153-0149	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	250K	½	153-0150	B-51	A47-250K-S	Q13-130	U44	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SYLVANIA PART No.	NOTES
R4	5.6Ω			
R5	10Ω			
R6	2.2meg			
R7	10K			
R8	68K			
R9	68Ω			
R10	10Ω			
R11	2.2meg			
R12	18K			
R13	33K	1		
R14	10K			
R15	100K			
R16	15Ω			
R17	100K			
R18	1000Ω			
R19	27K	1		
R20	68Ω			
R21	100K			Note 1
R22	390K			Note 2
R23	2200Ω			
R24	27K	1		
R25	100Ω			
R26	68Ω			
R27	15K			
R28	470K			
R29	470K			
R30	68Ω			
R31	68K			

Note 1. Some versions may use 47K in this application.

ITEM No.	RATING OHMS	RATING WATT	SYLVANIA PART No.	NOTES
R32	2.2meg			
R33	1meg			
R34	4.7meg			
R35	100K			Note 1
R36	10meg			
R37	270K			
R38	220K			
R39	68K			
R40	100K			
R41	120K			
R42	470Ω			
R43	220K			
R44	6800Ω			
R45	100K			
R46	120K			
R47	470Ω			
R48	100Ω			
R49	360Ω 5%	2		
R50	360Ω 5%	2		
R51	100Ω			
R52	220K			
R53	2700Ω			
R54	470Ω			
R55	900Ω	5	187-0057	
R56	33K	2		
R57	80Ω	10	187-0058	
R58	5.6Ω 5%			

Note 2. Some versions may use 470K in this application.

RADIO PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		SYLVANIA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	111-0024						
L2	FM RF Coil	112-0016						
L3	FM Osc. Coil	113-0042						
L4	Loopstick	581-0014						
L5	AM RF Coil	112-0015						
L6	AM Osc. Coil	113-0041	14-1073 *	14-1073 *	BC-393 *	69-OSC *		
L7	1st FM IF Trans.	121-0106	16-3487	16-3487	FM-254	1463		
L8	1st AM IF Trans.	121-0105	16-6758	16-6758	BC-352	12-C1	RF-1	
L9	2nd FM IF Trans.	121-0106	16-3487	16-3487	FM-254	1463		
L10	2nd FM IF Trans.	121-0105	16-6758	16-6758	BC-353	12-C2	RF-2	
L11	Ratio Detector	127-0001	17-3498	17-3498	FM-255	1465		

* Disregard Capacity Winding

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L12	.070A	195Ω	5HY	145-0028	20C59				20C59	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ 1A	600 VCT ⓐ .120A	5V ⓐ 3A	141-0076	22R05			PC8422	22R05 ①	
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ⓐ 4A									

① Use universal mounting brackets

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6700Ω CT	6-8Ω	143-0067	24S55	A-2905 ①	AU-609	A-2313	24S55	S-57Z	① Drill new mounting hole

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	15"	PM	6-8Ω	539-1501	15A10L	
SP2	5"	PM	6-8Ω	539-0509	5A15TZ8	
SP3	5"	PM	6-8Ω	539-0509	5A15TZ8	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	SYLVANIA PART No.	ASTATIC PART No.		JENSEN PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M1	916-0009 ①	53-T	GD-J			① Includes needles

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SYLVANIA PART No.	JENSEN PART No.	WALCO PART No.	
M2	902-0009	† S-66 or †♦ S-66SD or ♦ S-66D	† W-75TPS or †♦ W-75DS or ♦ W-75TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M3	Lamp	411-0031	#47
M4	Lamp	411-0031	#47
M5	Lamp	411-0033	117V, 7W
M6	Tuning Cap.	170-0028	6 Gang (AM Sections: Ant. 16-481mmf, RF 29-405mmf, Osc. 18-165mmf)
M7	Switch	573-0019	Function Selector (4 Position, Rotary Wafer Type)

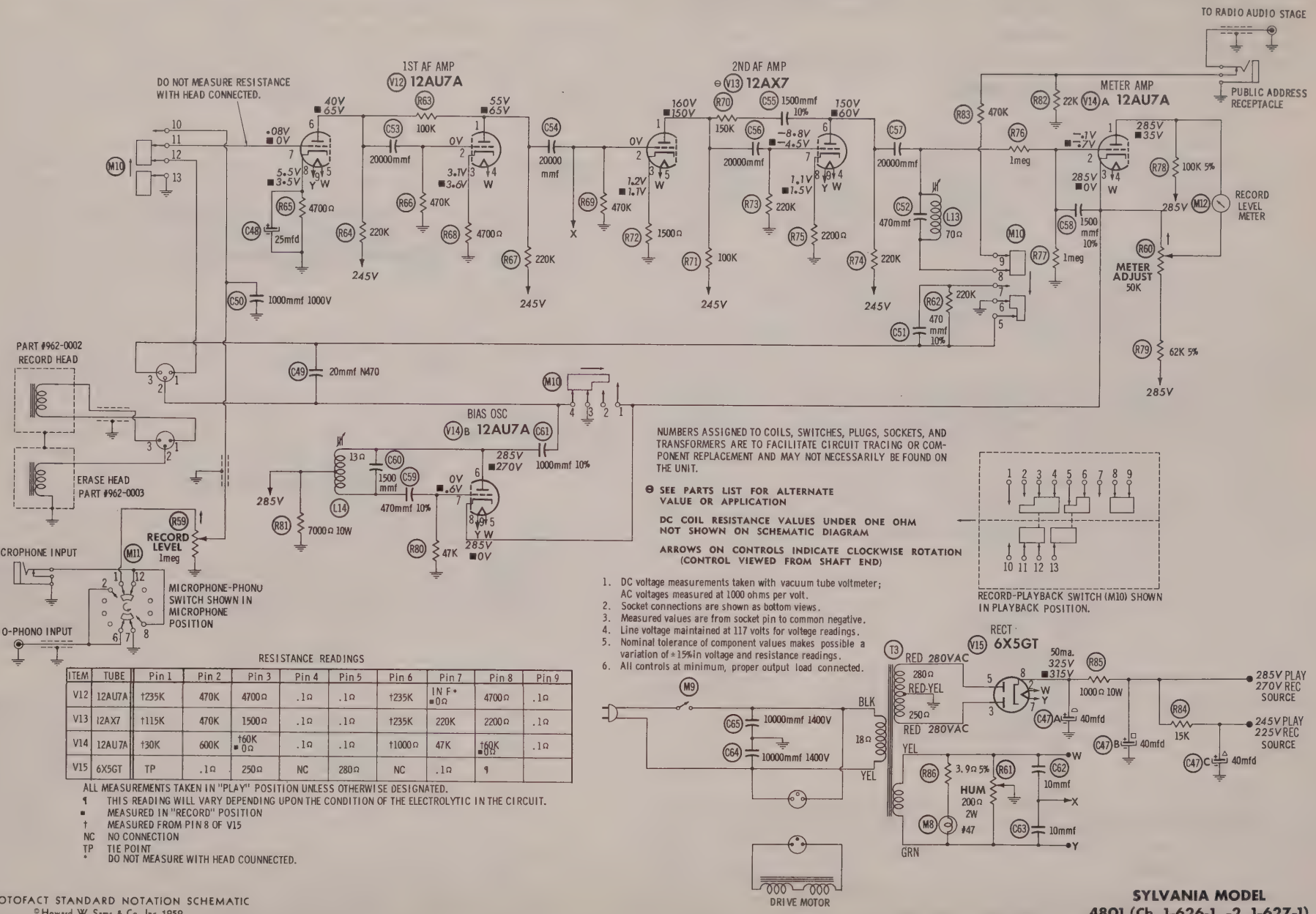
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	740-0189	Radio, 5 Used
Knob	954-0010	Reject-On-Off
Knob	954-0011	Speed Control
Cover	496-0016	Tape Head
Dial Pointer	792-0022	
Dial Glass	721-0019	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V12	12AU7A	†235K	470K	4700Ω	.1Ω	.1Ω	†235K	INF ▪0Ω	4700Ω	.1Ω
V13	12AX7	†115K	470K	1500Ω	.1Ω	.1Ω	†235K	220K	2200Ω	.1Ω
V14	12AU7A	†30K	600K	†60K ▪0Ω	.1Ω	.1Ω	†1000Ω	47K	†60K ▪0Ω	.1Ω
V15	6X5GT	TP	.1Ω	250Ω	NC	280Ω	NC	.1Ω	¶	

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
▪ MEASURED IN "RECORD" POSITION
† MEASURED FROM PIN 8 OF V15
NC NO CONNECTION
TP TIE POINT
* DO NOT MEASURE WITH HEAD COUNNECTED.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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SYLVANIA MODEL 4801 (Ch. 1-626-1, -2, 1-627-1)

TAPE AMP SCHEMATIC

AMP PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V12	1st AF Amplifier	12AU7A	
V13	2nd AF Amplifier	12AX7	(12AU7A)*

* Alternate type

ITEM No.	USE	TYPE	NOTES
V14	Meter Amp. -Bias Osc.	12AU7A	
V15	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C47A	▲40	300	161-3031	AFH4-02	D0020	FP327.89	TMD-31	TVLS-3580.5*	
B	■40	300					TD-40-350		
C	▲40	300							
C48	25	25	161-1027	PRS25V25	BBR25-25	TT25X25	TD-25-25	TVA-1205	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C49	20		N470							
C50	1000	1000		169-0066	HVD-15-1000	DD-102	BYA10D1M	B-110	5HK-D1	
C51	470		10%		DI-470	D6-471		JL-347	5GA-T47S 10%*	
C52	470				DI-470	DD-471	BYA10T47	B-347	5GA-T47	
C53	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C54	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C55	1500		10%		DI-1500			JL-215	5HK-D15S 10%*	
C56	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C57	20000				BPD-02	DD-203	BYB6S2	B-120	5HK-S2	
C58	1500		10%		DI-1500		1R5D15	JL-215	5HK-D15S 10%*	
C59	470		10%		DI-470	D6-471		JL-347	5GA-T47S 10%*	
C60	1500				1464-0015	DD-152	1R5D15	MC256	MS-215	
C61	1000		10%		DI-1000			JL-210	5HK-D1S 10%*	
C62	10				BPD-00001	DD-100	L10Q1	UC-531	5GA-Q1	
C63	10				BPD-00001	DD-100	L10Q1	UC-531	5GA-Q1	
C64	10000	1400					HVE16S1	2HV-110	20HKB-S1	
C65	10000	1400					HVE16S1	2HV-110	20HKB-S1	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R59A	1meg	½	153-0146	B-70	A47-1meg-Z	Q13-137	U53	Record Level
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R60A	50K	½	153-0156	BX-31	A47-50K-S	Bll-123	U35	Meter Adjust
B	Shaft			Not Req.	FKS-1/4	SK-2	Not Req.	
R61	200Ω	2(ww)	153-0144					Hum Control

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SYLVANIA PART No.	NOTES
R62	220K			
R63	100K			
R64	220K			
R65	4700Ω			
R66	470K			
R67	220K			
R68	4700Ω			
R69	470K			
R70	150K			
R71	100K			
R72	1500Ω			
R73	220K			
R74	220K			

ITEM No.	RATING OHMS	RATING WATT	SYLVANIA PART No.	NOTES
R75	2200Ω			
R76	1meg			
R77	1meg			
R78	100K 5%			
R79	62K 5%			
R80	47K			
R81	7000Ω	10	187-0055	
R82	22K			
R83	470K			
R84	15K			
R85	1000Ω	10	187-0026	
R86	3.9Ω 5%			

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SYLVANIA PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L13	52.5KC Trap	118-0034						
L14	Bias Osc.	113-0043						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	117V@ .33A	560 VCT @.050A	6.3V@ 2A	141-0077		P-3048①			22R01①	R-5B①

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M8	Lamp	411-0031	#47
M9	Switch	571-0027	Power On-Off (SPST, Snap Type)
M10	Switch	571-0024	Record-Playback (Slide, Spring Return Type)
M11	Switch	572-0008	Mic-Tuner (Rotary Wafer Type)
M12	Meter	961-0001	Record Level

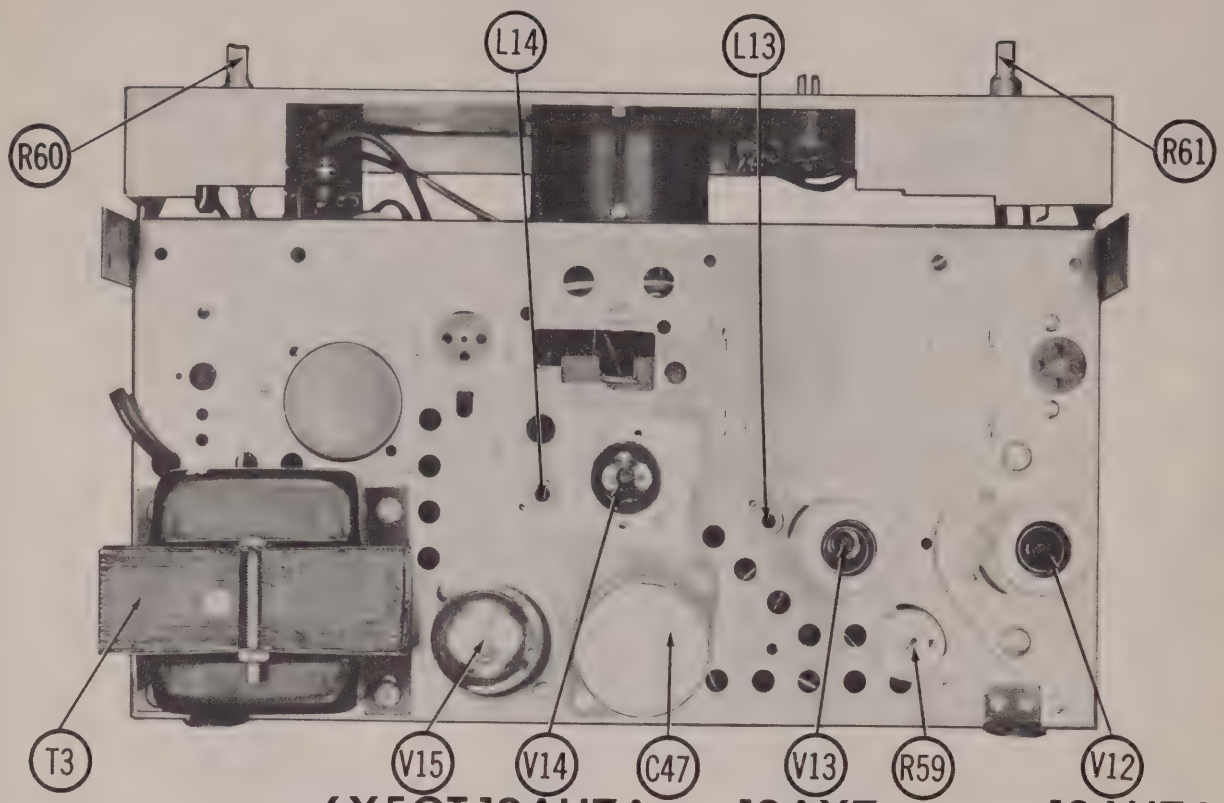
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



AMP CHASSIS—TOP VIEW

ADJUSTMENTS

The following adjustments should be made with the amplifier operating in "Record" position, no signal input.

BIAS OSCILLATOR AND TRAP (52.5KC)

1. Adjust L13 and L14 for maximum RF voltage at pin 3 of record head socket (junction C49 and C51).
2. Adjust L13 for minimum RF voltage at junction of L13 and R76.
3. Adjust L14 for minimum RF voltage at pin 3 of record head socket (junction C49 and C51).
4. Repeat steps 2 and 3.

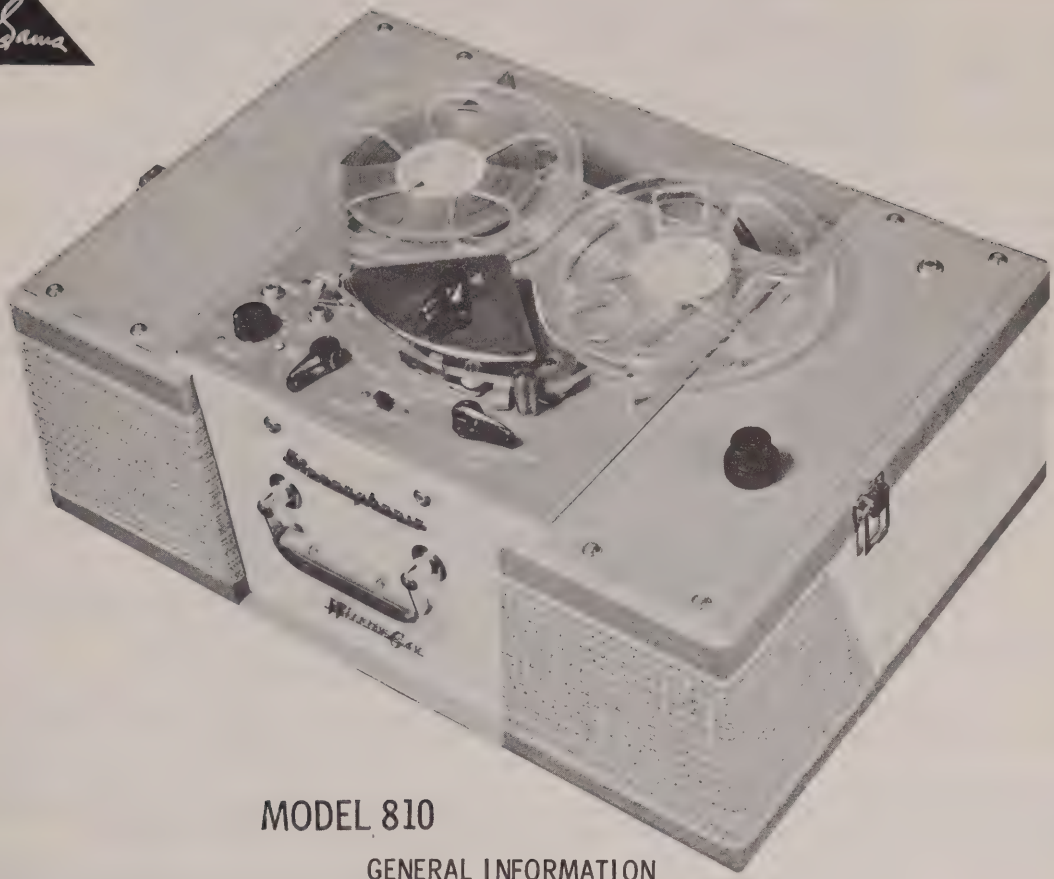
METER ADJUSTMENT

1. Adjust R60 so that meter needle coincides with black dot on left side of meter scale.

HUM ADJUSTMENT

1. Adjust R61 for minimum hum across radio external speaker terminals, Loudness (R1) at maximum.

PHOTOFACT* Folder



WILCOX-GAY
MODELS 810, 860

WILCOX-GAY
MODELS 810, 860

MODEL 810

GENERAL INFORMATION

Wilcox-Gay Models 810 and 860 Recordios record and play back two tracks of material monaurally on standard-width recording tape. The Model 810 will play back stereo recordings, but will not record them.

The erase head is automatically positioned when unit is in Record. New recordings can be made on previously recorded tape. Recordings can be made from a radio, television receiver, or phonograph, in addition to those made directly from a microphone. The units can also be used as a public address system.

These models have two tape speeds, 7 1/2 and 3 3/4 ips. When both tracks of tape are used, recording times are as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 Hour	1/2 Hour
7" (1200 ft.)	2 Hours	1 Hour

These recorders operate on 60 cycles, 117 volts AC only.

Manufactured by:
Wilcox-Gay Corporation
Charlotte, Michigan

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS 6, INDIANA

C392

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FUNCTION OF CONTROLS

On-Off, Left-Channel Volume (Model 810), Volume (Model 860), and Record Level.

1. Rotate control clockwise until a click is heard. This turns on the power to the unit.
2. On the Model 810, this control sets the desired listening level for the left channel of a stereophonic recording.
3. On the Model 860, this control sets the desired listening level of the recording.
4. When a recording is being made, this control selects the proper recording level.

Right Channel (Model 810)

This control is located to the right of the tape deck and is a dual control. The smaller inner knob adjusts the tone for the best listening level. The larger outer knob adjusts the volume of the right-channel amplifier, so that it is balanced with the left channel.

Fast Forward and Fast Rewind

CAUTION: The Stop and Start lever must be in the Stop position before this lever is operated.

1. Turning this lever to the left rewinds the tape rapidly from the right reel to the left reel. To stop the rewind, return the lever to its center position.
2. To advance tape (from left to right), turn lever to the right. After completing this mode of operation, return the lever to its center position.

Start and Stop Lever

CAUTION: Fast Forward and Fast Rewind lever must be in its center position before it is operated.

1. This lever starts the tape in either Play or Record.
2. Turning this lever to the Stop position stops the tape and automatically returns the Play-Record lever to the Play position if a recording is being made.

Speaker On-Off Switch

Use this switch to monitor a recording or to turn speaker off after record level has been set, to prevent squeal or feedback from speaker to microphone.

CAUTION: Be sure switch is in On position when unit is in Play position.

Play and Record Lever

CAUTION: Unit must be in Start position before this lever is operated.

1. Lever should be pointing at Play (marked on baseplate) to play the tape.
2. To place unit in Record position, hold down the Record Lock and move the Play-Record lever counterclockwise until a click is heard.

OPERATING INSTRUCTIONS

Threading Tape

1. Place a reel of tape on left reel pan. Make certain that reel slots engage protrusions on pan. Place empty reel on right reel pan. Again make certain that reel slots engage protrusions on pan.
2. Unwind approximately fourteen inches of tape from supply reel. Hold a section of tape taut and insert into tape slot. Make sure that dull-coated side of tape faces away from you.
3. Insert free end of tape into one of three slots in hub of take-up reel. Turn reel two or three times until tape is secured to reel.

CAUTION: Before threading tape, make sure that Play-Record lever is in Play position and that Start-Stop lever is in Stop position.

To Record From Microphone

1. Turn unit on. Allow sufficient time for unit to warm up.
2. Thread tape (see "Threading Tape"). Turn Stop-Start lever to Start.
3. Insert microphone plug into Microphone jack.
4. Depress Record Lock. Turn Play-Record control to Record position.
5. Set Volume control between 2 and 3.

To Record From Radio, TV Receiver, or Phonograph

1. For radio or television recordings, connect patch cord (supplied with unit) across voice coil of radio or television speaker, and plug into Radio-P.A.-Phono jack.
2. For phonograph recordings, plug phono plug into Radio-P.A.-Phono jack.
3. Proceed as described under "To Record from Microphone."

NOTE: Remove patch cord after recording is completed.

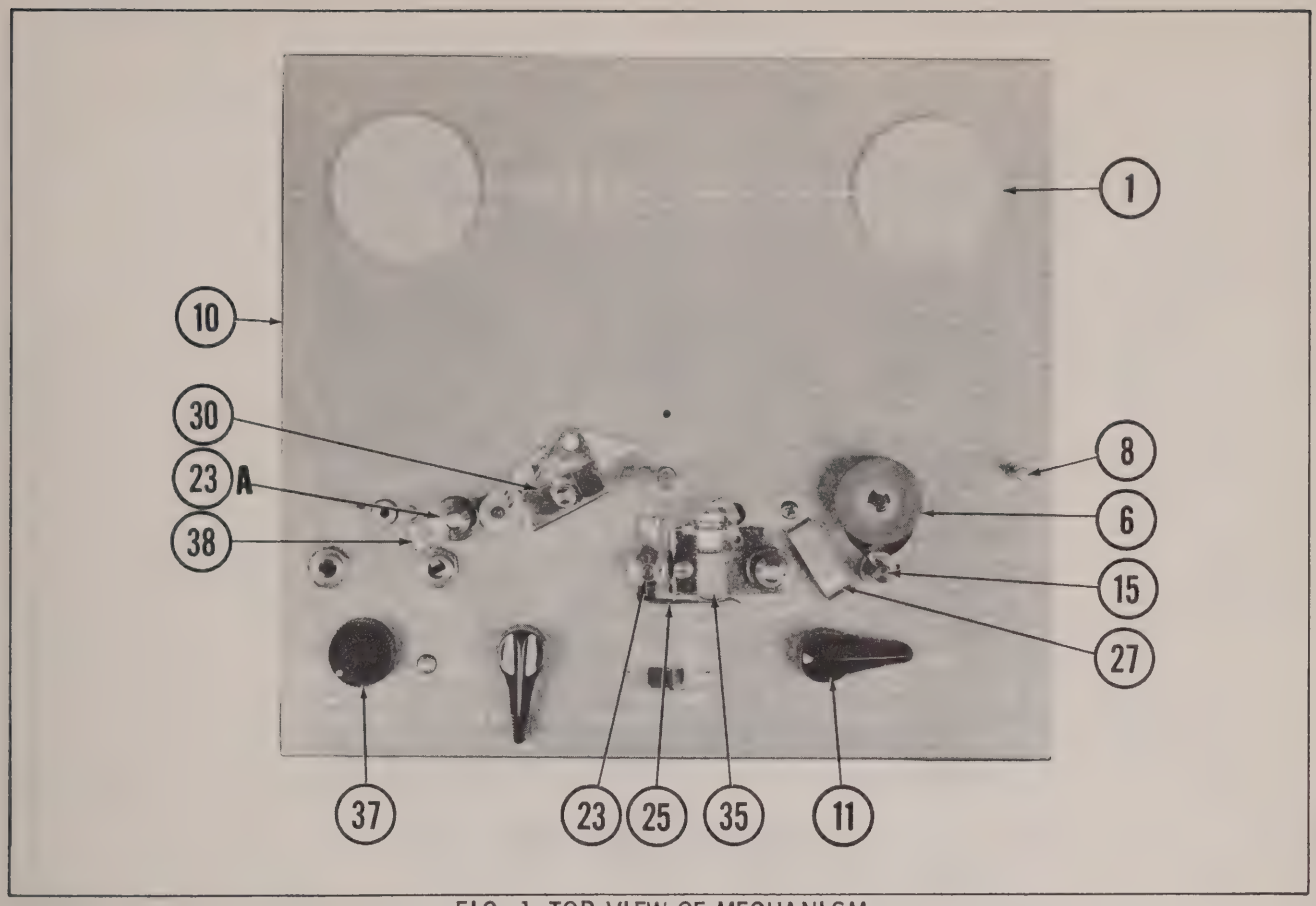


FIG. 1 TOP VIEW OF MECHANISM

To Use Second Track (Monaurally)

1. Return Stop-Start lever to Stop position after tape has been wound onto take-up reel.
2. Remove reel containing tape and place on left-hand (supply) pan.
3. Place empty reel on right-hand (take-up) pan.
4. Thread tape (see "Threading Tape"). Proceed with recording as previously described.

To Erase Tape

When Record lever is in Record position, the erase head is automatically positioned, so that any previous recording is erased while a new one is being made. To erase material no longer needed, without recording, turn Record lever to Record position and Volume control to minimum position. One track is erased at a time. To erase second track, reverse reels and repeat the forgoing operation.

To Use as a Public Address System

1. Plug microphone into Phono jack. Advance Left-Channel Volume control (on Model 810) or the Volume control (on Model 860) to desired listening level.
2. For additional coverage, use an extension speaker or speakers.

External Speaker Jack (Left and Right) (Model 810)

To improve stereo reproduction, place two external speakers approximately 10 feet apart. If only one external speaker is available, use it for the right channel and use the internal speaker for the left channel.

External Speaker Jack (Model 860)

A permanent-magnet speaker with a 3.2-ohm voice coil can be plugged into this jack for more volume and better coverage. The internal speaker is cut out when an external speaker is plugged into this jack.

DISASSEMBLY INSTRUCTIONS

(Model 810)

1. Remove the five wood screws on top left panel and the five wood screws on top right panel.
2. Remove the two metal screws at front center and the two metal screws at rear center of tape transport.

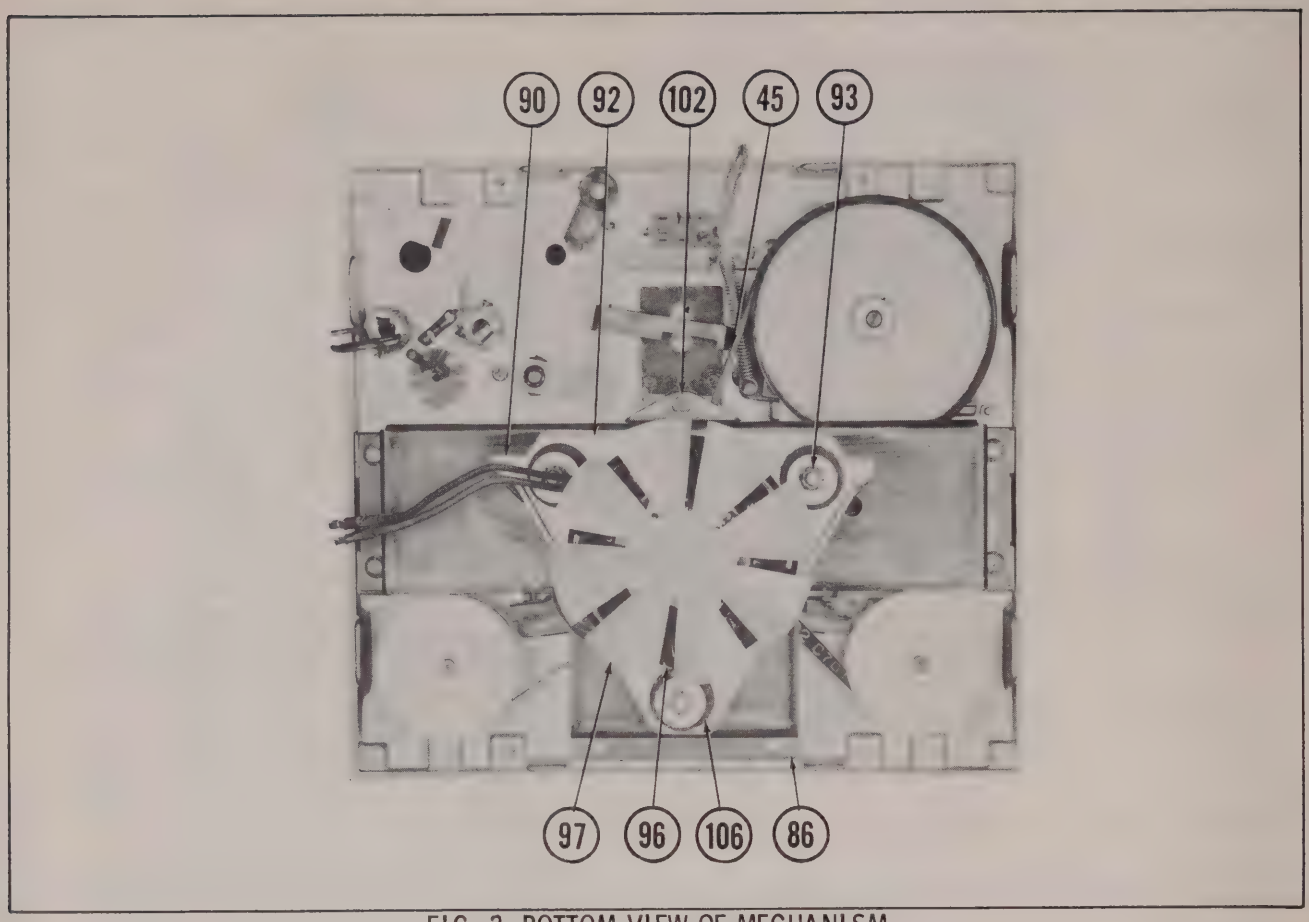


FIG. 2 BOTTOM VIEW OF MECHANISM

3. Remove top left panel. Disconnect speaker leads.

4. Remove top right panel. Disconnect speaker leads and head leads.

5. Remove wood screw holding AC cord at rear of unit.

6. Lift tape transport straight up and out of case, feeding AC cord through cutout at rear of case.

7. To reassemble, reverse the foregoing procedure.

To Remove Left-Channel Amplifier from Tape Transport

1. Remove all control knobs.

2. Disconnect all necessary leads.

3. Remove the four metal screws. Lift amplifier from tape transport.

4. To reassemble, reverse the foregoing procedure.

To Remove Right-Channel Amplifier from Wood Panel

1. Remove control knobs.

2. Remove hex nut from jack at rear. Push jack from hole in panel.

3. Remove two hex nuts on chassis. Remove panel from chassis.

4. To reassemble, reverse the foregoing procedure.

To Remove Unit from Case (Model 860)

1. Remove four metal screws, two on each side, from the tape transport.

2. Remove wood screw holding AC cord at rear of case.

3. Lift unit straight up, feeding AC cord through cutout in case.

4. Remove speaker leads from speaker.

5. To reassemble, reverse the foregoing procedure.

To Remove Amplifier from Tape Transport (Model 860)

1. Disconnect all necessary leads.

2. Remove all control knobs.

3. Remove the four metal screws. Lift amplifier from tape transport.

4. To reassemble, reverse the foregoing procedure.

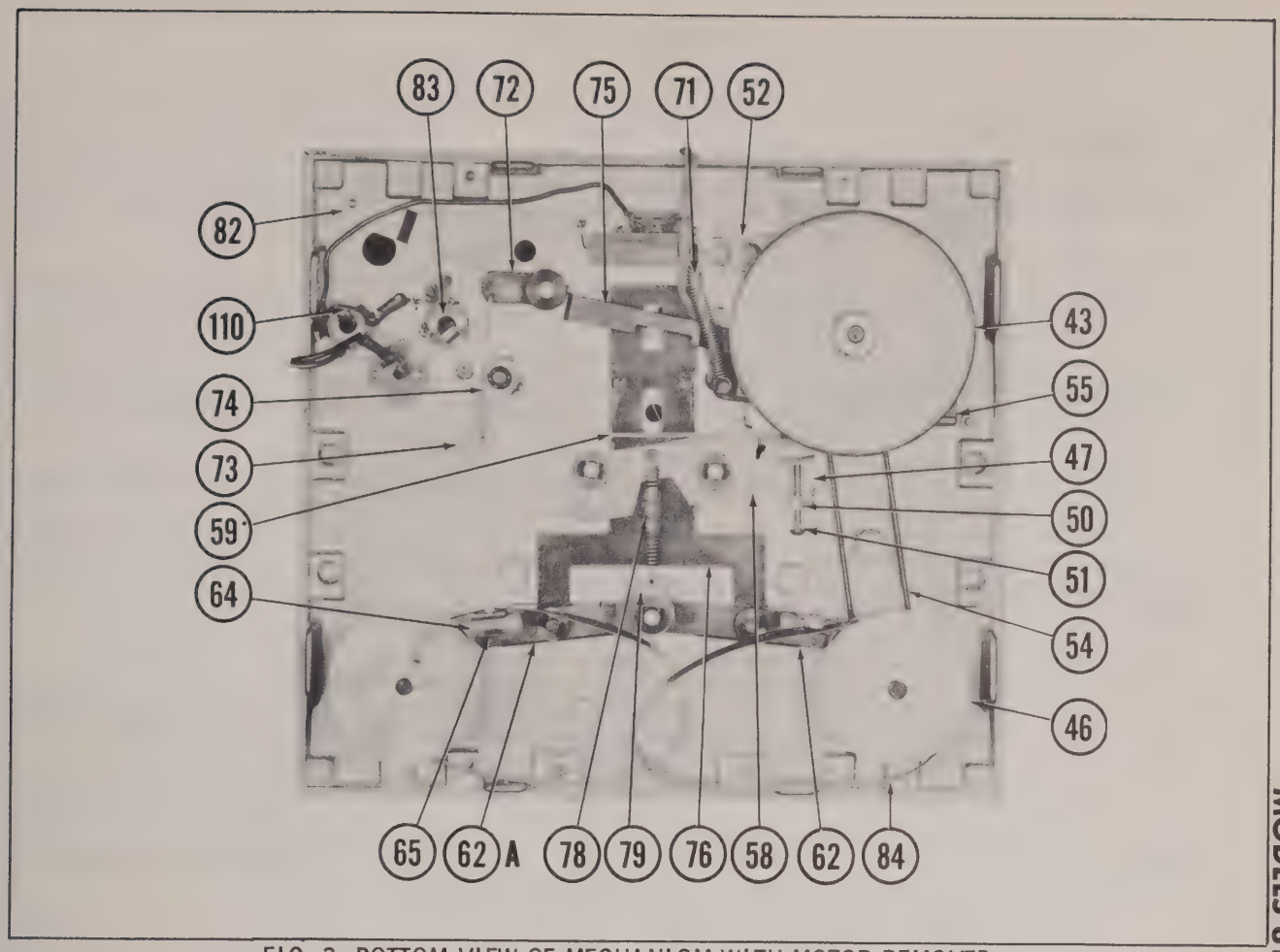


FIG. 3 BOTTOM VIEW OF MECHANISM WITH MOTOR REMOVED

ADJUSTMENTS

Erase Head

1. With tape properly threaded, turn recorder on, turn Stop-Start lever to Start position, and turn Play-Record lever to Record position. Allow tape to run for a few seconds. Then turn recorder off, but leave Play-Record lever in Record position.

2. With escutcheon (19) removed, check erase head (30) to see if it is parallel with tape.

3. Check to see if top edge of tape coincides with top end of diagonal slot in erase head (30) (junction of long diagonal and short vertical slots). To adjust level of tape, loosen set screw (22A) and rotate tape guide post (23A) to move tape up or down.

Brake Pads

Brake pads should clear brake drums by approximately 1/16 inch when Stop-Start lever is in Start position. To adjust pads, loosen clamp and move pads toward brake drums until 1/16-inch clearance is obtained.

LUBRICATION

All rotating parts contain nylon bearings. Therefore, no lubrication is required.

CLEANING

Most defects, other than wear or breakage, can be traced to dirty surfaces. Play-record head (35), capstan, and pinch roller (6) may accumulate tape coating oxide, which is worn off the tape as it passes these parts. Remove this accumulation periodically because it will cause faint recording and poor playback. Wipe the surfaces carefully with a clean cloth. If dirt is caked or hard and cannot be removed with a dry cloth, dampen the cloth slightly with alcohol or lighter fluid.

TROUBLE CHART

Symptom	Cause	Remedy
Tape does not wind onto take-up reel during Play or Record.	1. Reel-drive take-up tension spring (54) loose, disconnected, or broken.	1. Connect or replace reel-drive take-up tension spring (54).
	2. Reel pan and shaft (1) binding.	2. Remove foreign matter from bearing surface and shaft with a clean cloth.
No erase, or erase is incomplete.	1. Erase head actuating rod (74) disconnected or broken.	1. Connect or replace erase head actuating rod (74).
	2. Erase head (30) not properly adjusted.	2. See "Erase Head Adjustment."
Tape spills when Fast Forward or Rewind control is returned to neutral position.	1. Brake pads out of adjustment.	1. See "Brake Pad Adjustment.
	2. Brake pads worn out or missing.	2. Replace brake pads.
Wow.	1. Brake tension spring (78) disconnected or broken.	1. Connect or replace brake tension spring (78).
	2. Oil or foreign matter on driving surfaces.	2. Clean driving surfaces with a cloth and alcohol.
Flutter.	1. Dirty play-record head (35), pressure pad, capstan shaft, or pinch roller (6).	1. Clean (see "Cleaning").
No fast forward or rewind.	1. Flat belt (84) broken.	1. Replace flat belt (84).
Does not record.	1. Defective microphone or cord.	1. Replace if necessary after checking recorder with another type of input.
	2. Defective input jack.	2. Check, and replace if necessary.
	3. Defective tube.	3. Check tubes and replace any defective ones.
	4. Open play-record head (35).	4. Check continuity. After checking continuity, demagnetize play-record head (35).
Motor and amplifier do not operate.	1. Defect in power supply.	1. Check voltages against schematic.
	2. Damaged power cord.	2. Repair or replace power cord.
	3. Defective on-off switch.	3. Replace on-off switch.
Stop-Start knob will not stay in Stop position.	1. Spring (70) disconnected or broken.	1. Connect or replace spring (70).

Ref. No.	Part No.	Description
1	C-13.401	Reel Pan & Shaft Assy.
2	B-28.163	Linen Washer
3		Flat Washer
4	C-33.418-2	"E" Ring 3/16" Shaft
5	B-28.163	Linen Washer
6	B-33.575	Pinch Roller
7		Flat Washer
8	B-32.432-1	Tape Guide Post
9		Int. Lockwasher
10	D-35.1235-1	Baseplate (Model 860)
	D-35.1235-2	Baseplate (Model 810)
11	B-13.404	Bar Knob
12		Set Screw
13		Linen Washer
14	B-33.418-3	"E" Ring
15	B-35.1247-1	Capstan Shaft & Pin Assy.
16		Flat Washer
17	B-13.394-2	Nylon Bearing
18	57-4C-618-5	#6-32 x 1 1/8" O.H.M.S. Phil.
19	C-19.1487-1	Escutcheon
20		Rubber Escutcheon Pad
21	B-33.585	Spacer
22	57-3439-0	#6-32 x 3/16" Bristol Hd. Set Screw
23	B-32.309-1	Tape Guide Post
24		Tape Guide Compression Spring
25		Pressure Pad Assy.
26		Screw
27		Tape Positioning Bracket (Right)
28		Hex Nut
29		Flat Washer
30	B-35.1201-1	Erase Head Assy.
31		Hex Nut
32		Play-Record Adjusting Screw
33		Lockwasher
34	B-19.1502-1	Head Mounting Bracket (Model 810)
	B-19.1529-1	Head Mounting Bracket (Model 860)
35	B-36.232	Stereo Head (Model 810)
	B-36.243	Record Playback Head (Model 860)
35A		Compression Spring
36		Hex Nut
37	B-13.416-2	On-Off Volume Control Knob (Model 810)
	C-13.367-1	On-Off Volume Control Knob (Model 860)
38		Tape Positioning Bracket (Left)
39		Hex Nut
40		Flat Washer
41		Washer
42		Flat Washer
43	B-13.403	Flywheel
44		Set Screw
45	B-28.195	Drive Belt
46	B-32.436	Brake Drum
47	B-35.1212-1	Pinch Roller Release Plate
48	B-32.419	Brass Roller
49	C-33.418-2	"E" Ring
50	48-2219-1	#6-32 x 5/16" Hex Nut & Ext. Lockwasher
51	57-6C-616-1	#6-32 x 1R.H.M.S. Stl. C.P. Phil. Screw

Ref. No.	Part No.	Description
52	B-19.1509-1	Cam Lever Bracket
53	57-7C-805-1	#8-32 x 5/16" Phil. Stl. C.P. Screw
54	B-31.351	Reel-Drive Take-up Tension Spring, Drive Belt
55	B-35.1195-1	Pinch Roller Plate Assy.
56		Shouldered Washer
57		Phil. Screw
58	B-19.1470-1	Brake Release Plate
59	B-19.1517-1	Motor Interlock Lever
60	73-2231-4	#6 Int. Lockwasher
61	57-1C-604-1	#6 x 1/4" B.H.M.S. Stl. C.P.
62	B-19.1539-1	Brake Lever (Right)
62A	B-19.1540-1	Brake Lever (Left)
63	73-2241-105	#8 Flat Washer
64	B-31.480	Rubber Brake Pad
65	15-2003-2	Wire Clamp
66	57-11C-804-1	#8-32 x 1/4" St. Slot B.H.M.S. Stl. C.P. Screw
67	B-32.421-1	Pinch Roller Actuating Camshaft
68		Bristol Head Set Screw
69	B-19.1503-0	Pinch Roller Actuating Cam
70		Spring
71	B-31.462	Pinch Roller Spring
72	B-19.1379-0	Switch Lever
73	B-19.1549-0	Switch Lever
74	B-31.468	Switch Lever Linkage
75	B-19.1526-1	Erase Kick-out Lever
76	C-35.1196-1	Brake Slide Plate
77	B-33.415	Push-on Fastener
78	B-31.473	Brake Tension Spring
79	B-19.1525-1	Spring Retaining Bracket
80		Flat Washer
81		Push-on Fastener
82	B-31.478	Record Interlock Spring
83	B-35.1224-1	Mike Jack Assy.
84	B-33.581	Flat Belt
85	57-7C-805-1	#8-32 x 5/16" Phil. Stl. C.P. Screw
86	E-19.1488-1	Motor Mounting Bracket
87	57-10C-1020-1	#10-32 x 1 1/4" H.H.M.S. Stl. C.P. Screw
88	B-32.420-1	1/2 x .203 x 1/16" Shouldered Washer
89		Flat Washer
90	B-32.430	Forward and Reverse Linkage Lever
91		Flat Washer
92	C-19.837-1	Motor Adapter Plate
93	48-2221	#10-32 Stop Nut
94		Flat Washer
95		Spacer
96	D-36.153	Motor (Fasco)
	D-36.241	Motor (Universal)
97	C-19.887-1	Fan Blade (For Fasco Motor)
	C-19.1553	Fan Blade (For Universal Motor)
98	B-32.439	Motor Pulley
99	57-3706-0	#8-32 x 1/8" Bristol Head Set Screw
100	57-10C-1020-1	#10-32 x 1 1/4" H.H.M.S. Stl. C.P. Screw
101		Flat Washer
102	B-19.1496-0	Cam
103		Forward and Reverse Lock Lever

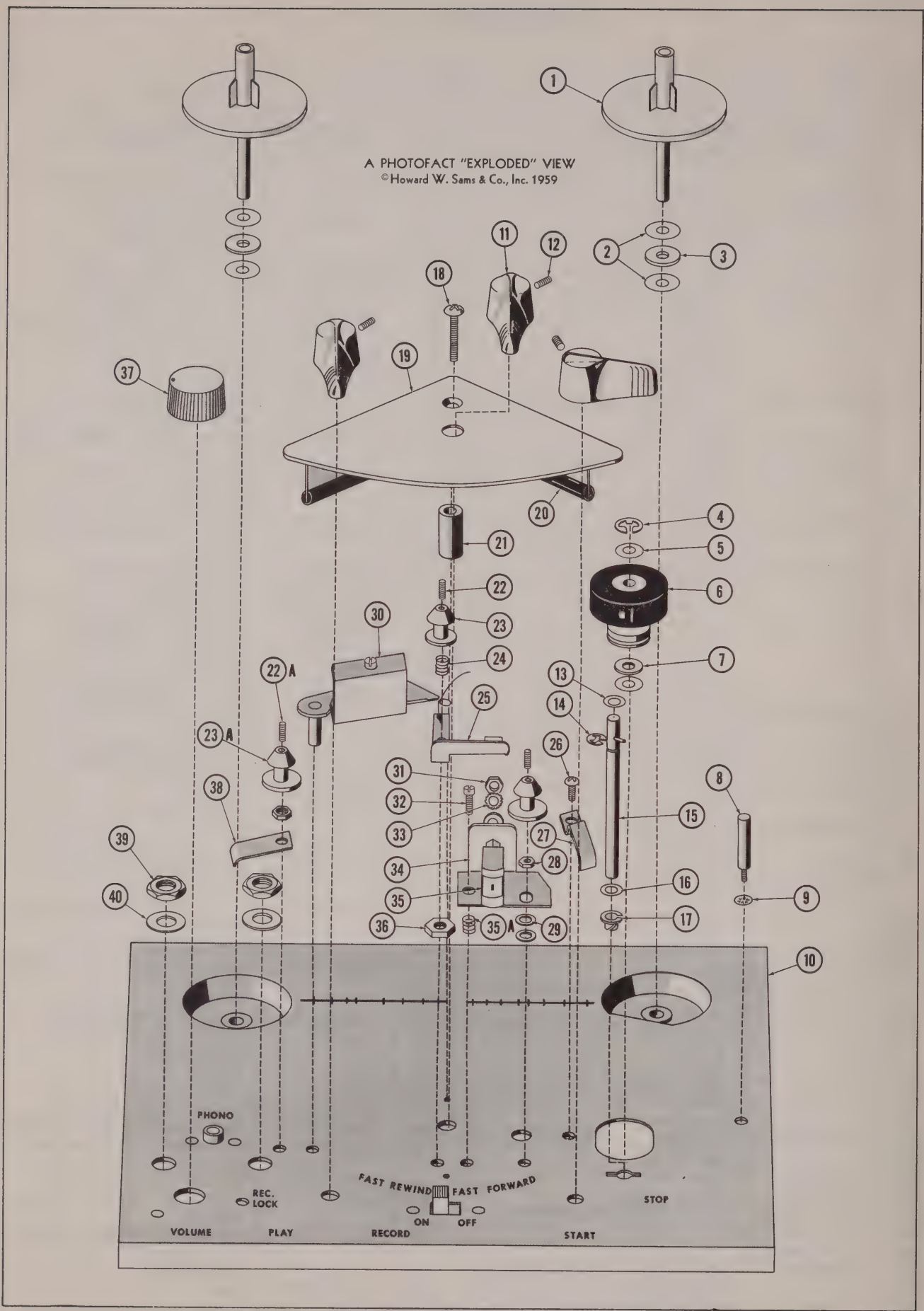


FIG. 4A EXPLODED VIEW OF PARTS ABOVE BASEPLATE

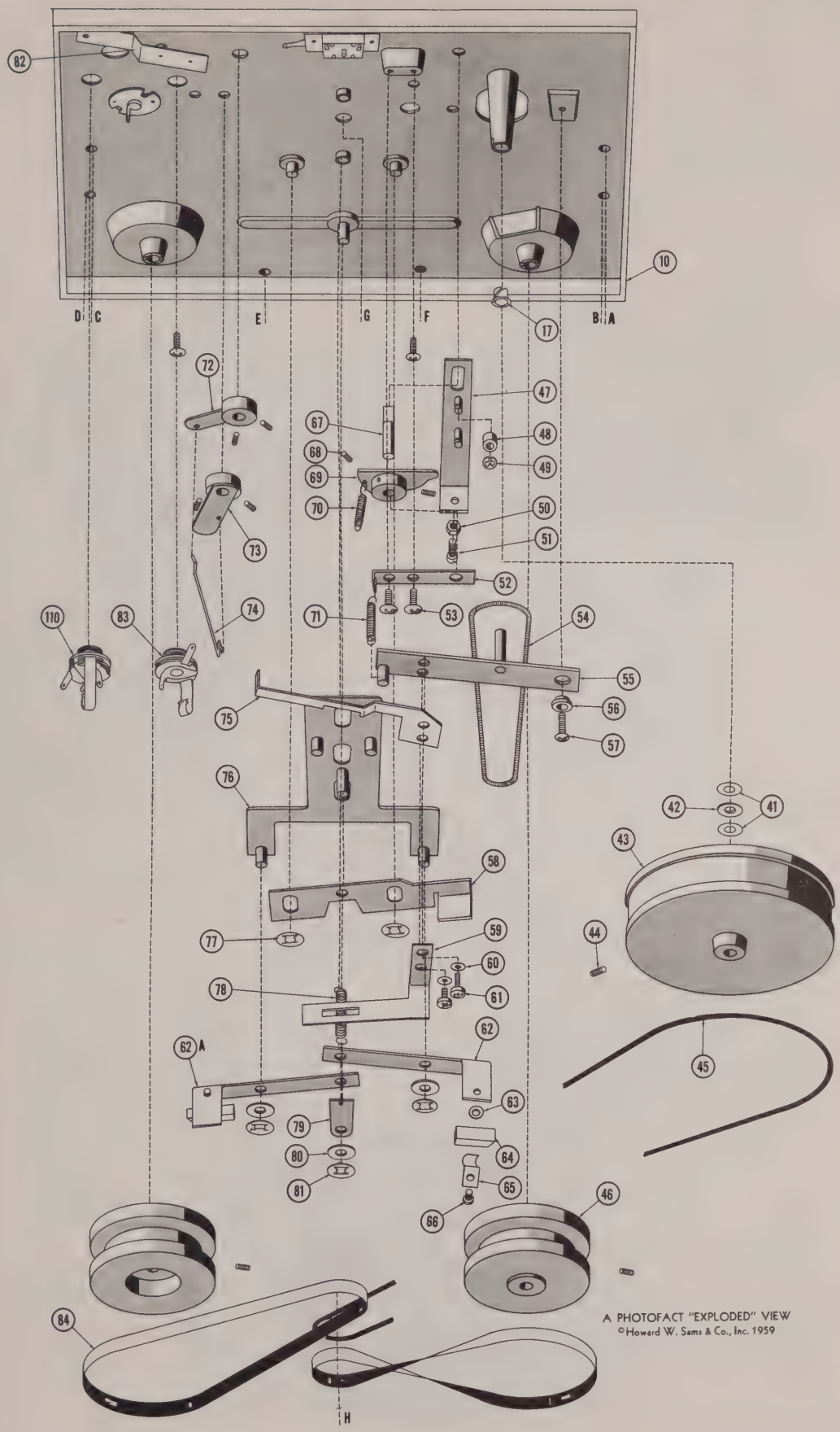


FIG. 4B EXPLODED VIEW OF PARTS BELOW BASEPLATE

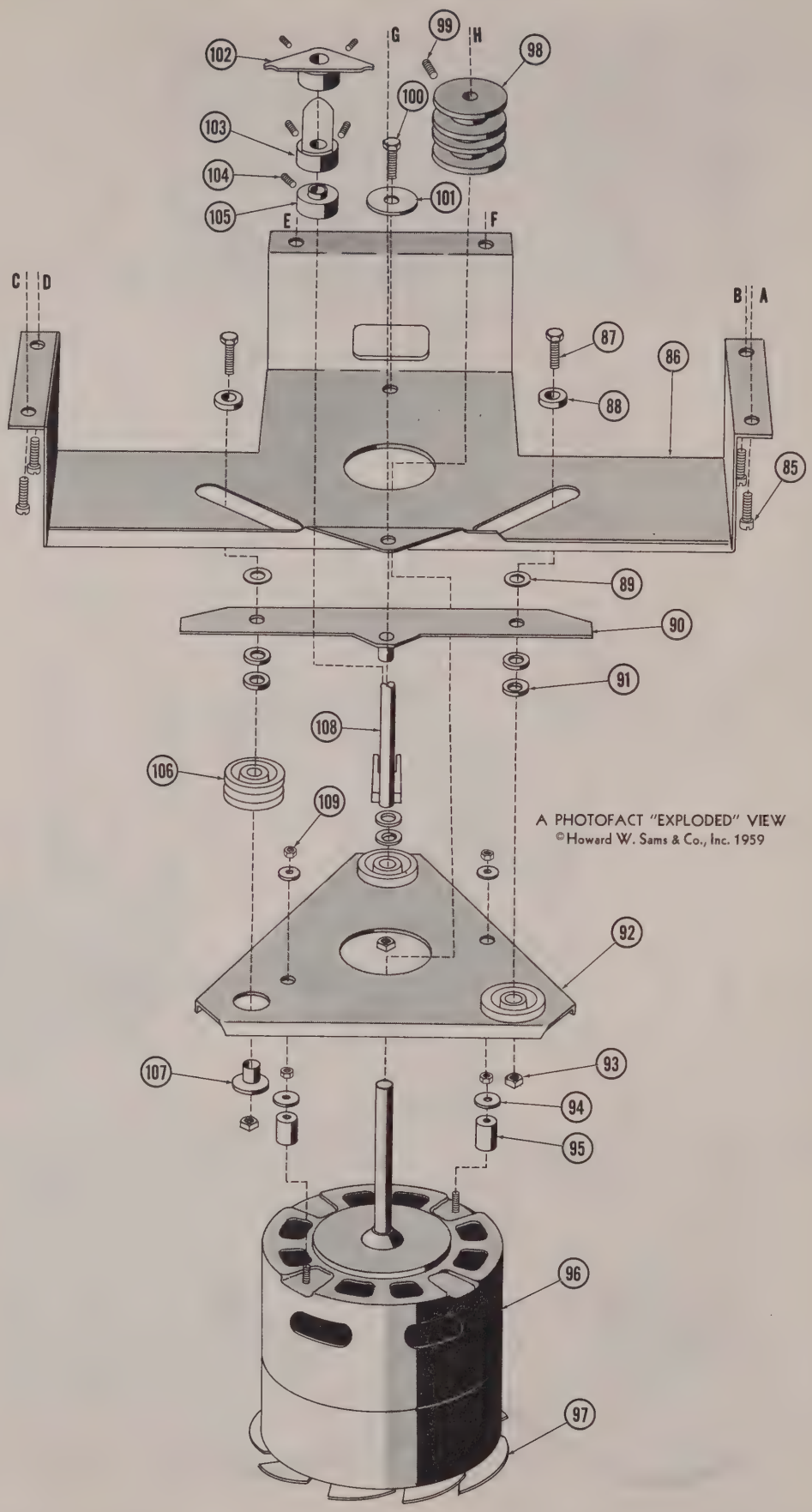
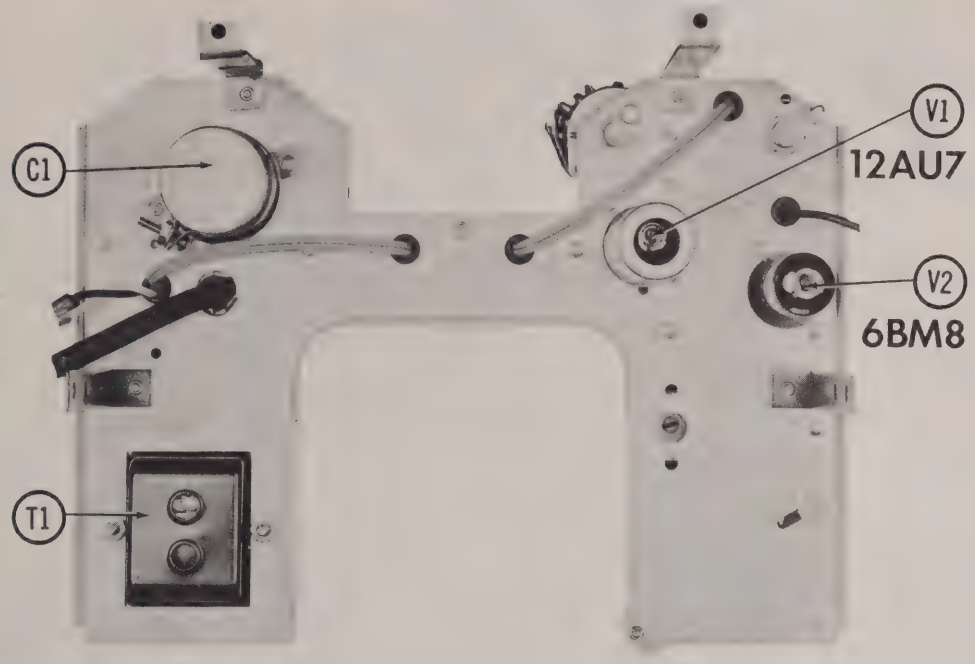


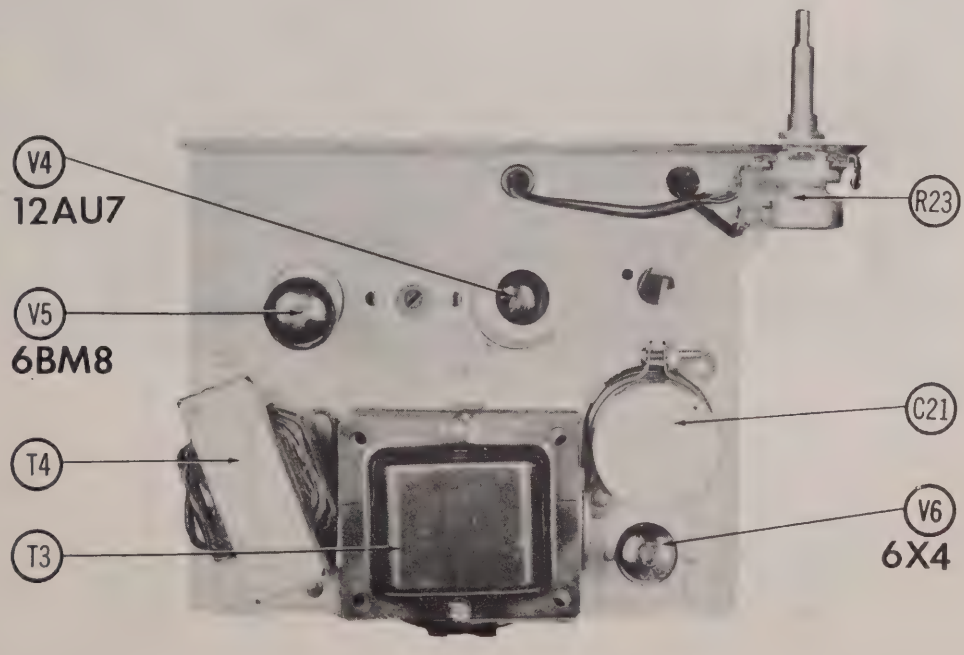
FIG. 4C EXPLODED VIEW OF MOTOR MOUNTING ASSEMBLY

Ref. No.	Part No.	Description
104	57-3698-0	Bristol Head Set Screw #8-32 x 3/16"
105	B-32.278-0	Bushing
106	B-28.194-2	Lord Shock Mount
107		Shouldered Washer

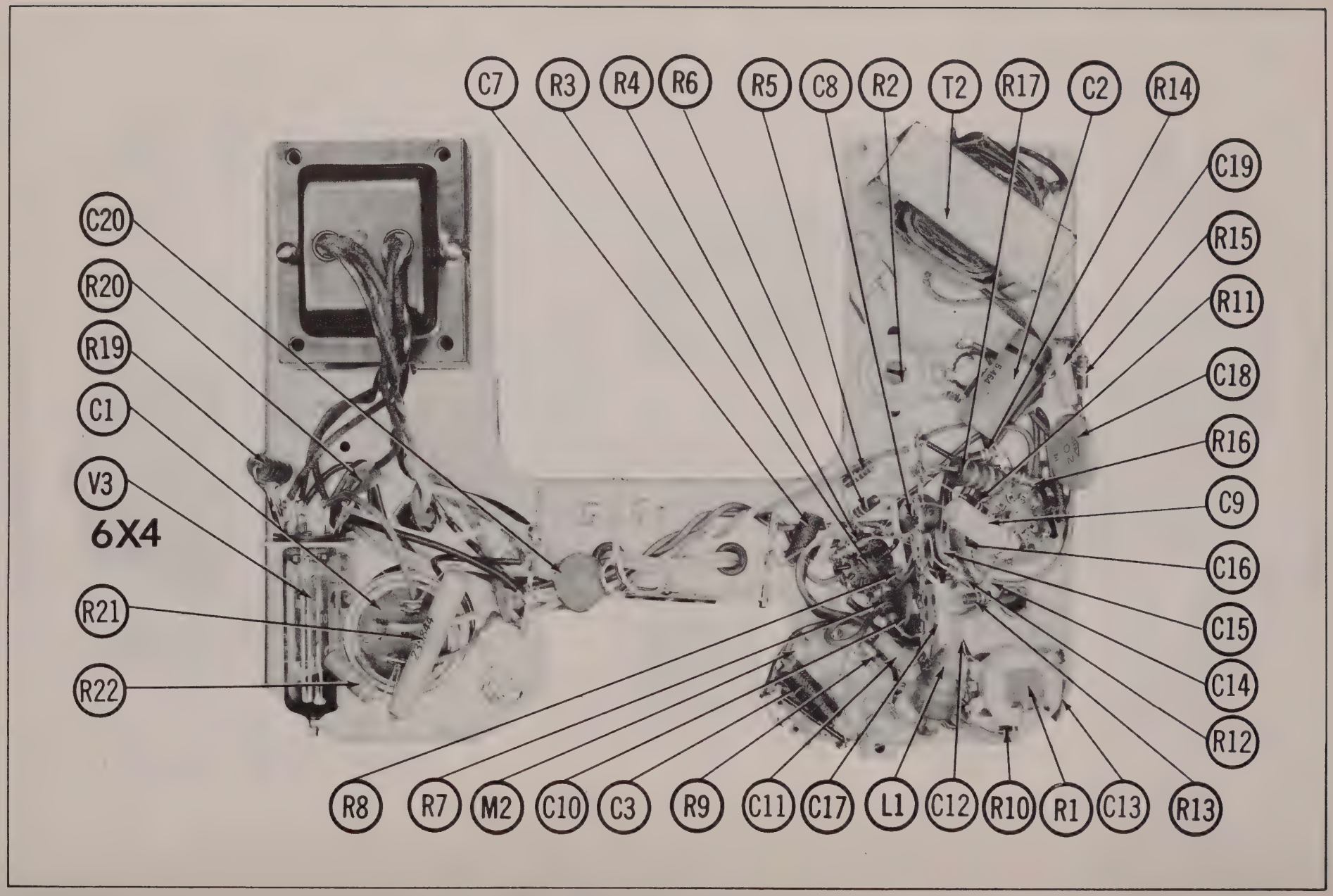
Ref. No.	Part No.	Description
108	B-35.1211-1	Shift Plate & Post Assy.
109		Hex Nut
110	B-33.529-2	External Speaker Jack
111	B-32.415-1	Capstan Adaptor (7 1/2 ips)



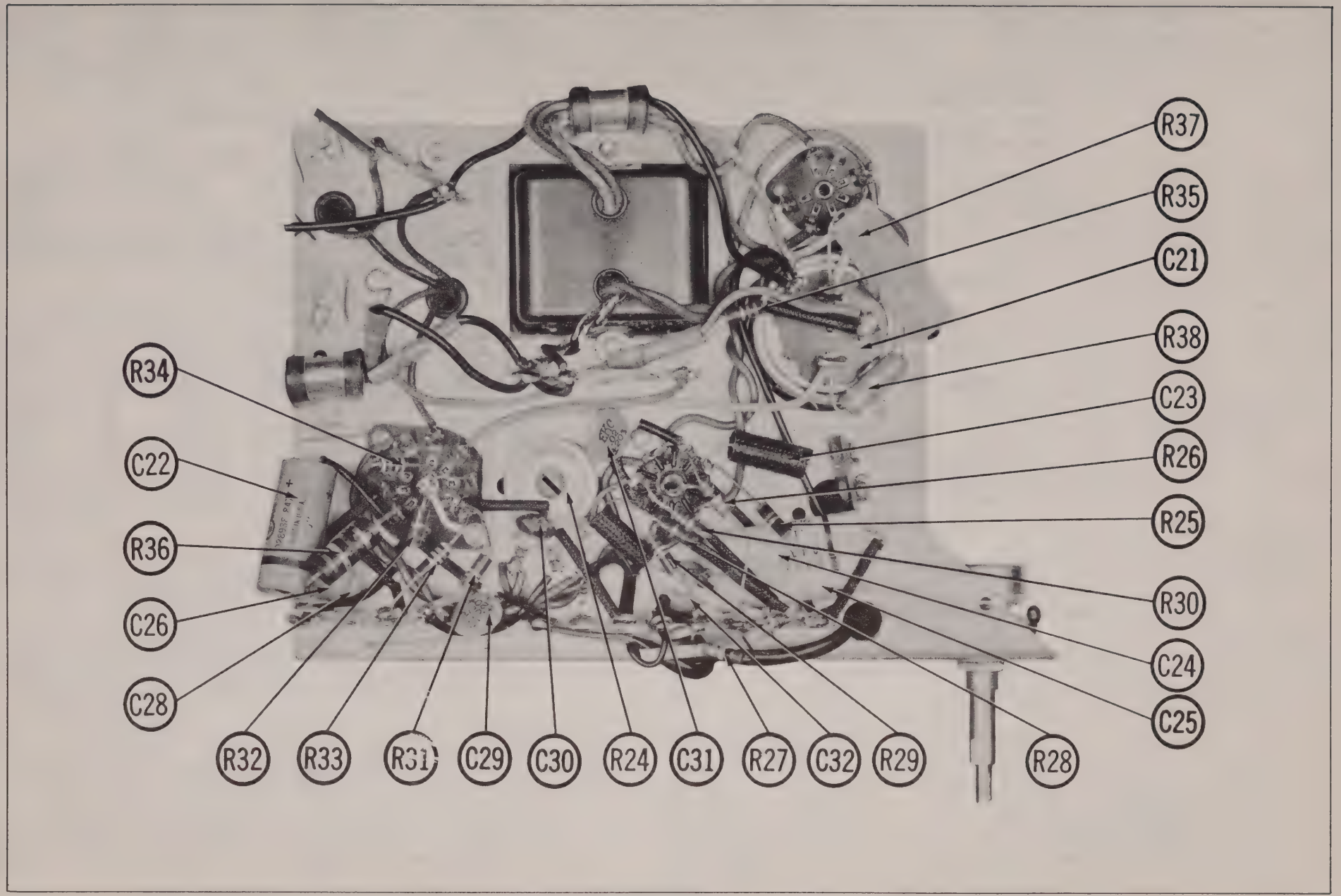
LEFT CHANNEL AMP - TOP VIEW



RIGHT CHANNEL AMP - TOP VIEW



LEFT CHANNEL AMP - BOTTOM VIEW



RIGHT CHANNEL AMP - BOTTOM VIEW

LEFT CHAN PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	AF Amp.-Bias Osc.	ECC82/12AU7
V2	AF Amp.-Output	ECL82/6BM8
V3	Rectifier	EZ90/6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Wilcox-Gay PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	300	C-5.421-11 ①					TVLS-3584 *	
B	▲100	300	①						
C	■100	300	①						
C2	50	12.5	B-5.464 ②	SRE25V50	BBR50-25	TC29	TD-50-25	TVA-1206	
C3	2.2	3	B-5.467-1	XPP-3002	NLW2-3	TT6X2	ML2-6	TE-1051	

① In some versions C1A and C1C are reversed. In other versions C1 may be a 40-40-40mfd unit.
② C2 may be a 25V unit in some versions (Part #B-5.473).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	Wilcox-Gay PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	2000		10%		DI-2000		PM6D2	JL-210	6TM-D2	①
C5	2000		10%		DI-2000		PM6D2	JL-210	6TM-D2	①
C6	10000		10%	C-4.115-25			PM6S1	GTM-611	6TM-S1	
C7	100		10%	C-4.109-45		D6-101	PM6T1	ZT-531	MS-31	
C8	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	
C9	.001	600		D-4.104-88	P688N-001	D6-102	CUB6D1	GEM-621	6TM-D1	
C10	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	
C11	510		10%		1464-00051		1R5T51		MS-351	②
C12	820		10%	D-4.104-82	1464-00082		1R5T82	JL-382	MS-382	
C13	5000			C-4.115-27	BPD-005		PM6D5	JL-250	5HK-D5	
C14	10000		10%	C-4.115-25			PM6S1	GTM-611	6TM-S1	
C15	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	③
C16	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	③
C17	10		10%	D-4.104-2	1469-00001	D6-100	22R5Q1	MCB215	MS-41	
C18	20000	1000	10%	C-4.115-33				GEM-1612	10TM-S2	
C19	470		10%	C-4.151-2	1464-00047	D6-471	22R5T47	JL-347	MS-347	
C20A	4000			B-4.131-2	BPD-2X004	DD3-502	BYC6DD4	GEM-624	5HK-2D4	
B	4000							GEM-624		

① When C5 is 1000mmf, C4 is not used.
② Some versions may use 470mmf in this application.
③ When C16 is .04mfd, C15 is not used.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Wilcox-Gay PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	C-8.227-12	BT-71	A47F5-1meg	Q19-137X	UT-443	Volume, Tap ⓐ 500K, Note 1
B	Shaft			AK-22	FS-5	442	RS-243	
C	Switch			KR-1	SWE-12	76-1	US-26	Power On-Off
R2A	500Ω	½	B-8.240	AB-4	B47-500-S	B11-103	PTA52L	Hum Balance
B	Shaft			AK-1	Not Req.	SK-2	Not Req.	

Note 1. Some versions may use alternate Part #B-35.1240-1.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R3	2.2meg		D-7.101-155	
R4	220K		D-7.101-114	
R5	820Ω		D-7.101-13	
R6	47K 5%		D-7.101-85	
R7	10meg		D-7.101-191	
R8	220K		D-7.101-114	
R9	100K		D-7.101-100	
R10	100K		D-7.101-100	
R11	10meg		D-7.101-191	
R12	220K		D-7.101-114	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R13	47K		D-7.101-86	
R14	470K		D-7.101-128	
R15	220K		D-7.101-114	
R16	270Ω		D-7.101-225	
R17	270Ω	1		Note 1
R18	3.3Ω	4	C-6.215-21	
R19	220Ω	2	D-7.101-114	Note 2
R20	220Ω	2	D-7.101-114	Note 2
R21	470Ω	7	C-6.215-16	
R22	4700Ω	2	D-7.103-114	Note 3

Note 1. Some versions may use 330Ω 1W in this application (Part #D-7.102-2).
Note 2. Not used in some versions.
Note 3. Some versions may use 10K 2W in this application (Part #D-7.101-65).

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Wilcox-Gay PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Bias Osc.	B-1.557						

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .48A	600VCT ⓐ .070 A	6.3V ⓐ 1.5A	C-9.304						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5200Ω	3-4Ω	C-9.264-E ①	26S49	A-3019	AU-606	A-8092	26S49	S-5X	① Alternate Part #C-9.303

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	Wilcox-Gay PART No.	QUAM PART No.	NOTES
SP1	4"x 6"	PM	3-4Ω	C-30.354-1	Q46A1	

MISCELLANEOUS

ITEM No.	PART NAME	Wilcox-Gay PART No.	NOTES
M1	Record-Playback Head	B-36.243	(World-Magnetics) Model 860
	Stereo Head	B-36.232	(Michigan-Magnetics) Model 810
	Erase Head Ass'y.	B-35.1201-1	
	Erase Head Ass'y.	C-35.765-1	Permanent Magnet Type
M2	Switch	B-11.282A	Function
	Switch Ass'y.	B-35.1241-1	Function
M3	Switch	B-11.287	Speaker On-Off (SPST Slide Type)
	Microphone	36-195	Tuner #908

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

RIGHT CHAN PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V4	AF Amp.	ECC82/12AU7
V5	AF Amp. -Output	ECL82/6BM8

ITEM No.	USE	TYPE
V6	Rectifier	EZ90/6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Wilcox-Gay PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C21A	▲100	300	C-5.421-11 ①					TVLS-3584*	
B	■100	300	①						
C	▲50	300	①						
C22	50	12.5	B-5.464 ②	SRE25V50	BBR50-25	TC29	TD-50-25	TVA-1206	
C23	2.2	3	B-5.467-1	XPP-3002	NLW2-3	TT6X2	ML2-6	TE-1051	

① In some versions C21A and C21C may be reversed. In other versions C21 may be a 40-40-40mfd unit.
② C22 may be a 25V unit in some versions (Part #B-5.473).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RATING TOL	REPLACEMENT DATA Wilcox-Gay PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C24	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	①
C25	.1	200			P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	① ②
C26	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	
C27	100		10%	C-4.109-45	NPO-SI 100	D6-101	PM6T1	ZT-531	MS-31	
C28	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	
C29	20000		10%	C-4.115-26			PM6S2	GTM-6122	6TM-S2	
C30	1500		10%		DI-1500		PM6D15	JL-215	6TM-D15	
C31	20000		10%	C-4.115-26			PM6S2	GTM-612	6TM-S2	③
C32	20000		10%	C-4.115-26			PM6S2	GTM-612	6TM-S2	③

① Not used in some versions.
② Some versions may use .22mfd in this application.
③ When C32 is .04mfd, C31 is not used.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Wilcox-Gay PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R23A	1meg	½	B-11.288 ①	F1-56		† QJ-1104	† UE3987	Volume, Tap ⓐ 500K
B	100K	½		R2-31				Tone
R24A	500Ω	½	B-8.240	AB-4	B47-500-S	B11-103	PTA52L	Hum Balance
B	Shaft			AK-1	Not Req.	SK-1	Not Req.	

① Tap not used in some versions. Some versions may use Part #B-35.1252-1.
† "Concentrikit" Equivalent: K-2 Kit with Base Elements & Shafts: B19-137X, P1-106, (Panel) B11-128, R1-118 (Rear)
† "STA-LOC" Equivalent: FA16T35, OS1125, RU15L, IS1652.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R25	10meg		D-7.101-191	
R26	100K		D-7.101-100	Note 1
R27	100K		D-7.101-100	Note 2
R28	2.2meg		D-7.101-155	

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R29	220K		D-7.101-114	
R30	820Ω		D-7.101-13	
R31	220K		D-7.101-114	
R32	2.2meg		D-7.101-155	Note 3

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R33	47K		D-7.101-86	
R34	470K		D-7.101-128	
R35	270Ω		D-7.101-225	

ITEM No.	RATING OHMS	RATING WATT	Wilcox-Gay PART No.	NOTES
R36	270Ω	1		Note 4
R37	470Ω	7	C-6.215-16	
R38	4700Ω	2	D-7.103-114	Note 5

Note 1. Some versions may use 220K in this application (Part #D-7.101-114)
Note 2. Not used in some versions.
Note 3. Some versions may use 10meg in this application (Part #D-7.101-191) .
Note 4. Some versions may use 330Ω 1W in this application. (Part #D-7.102-2).
Note 5. Some versions may use 10K 2W in this application (Part #D-7.103-128).

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T3	117V ⓐ .48A	600VCT ⓐ .070A	6.3V ⓐ 1.5A	C-9.304						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Wilcox-Gay PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	5200Ω	3-4Ω	C-9.264-E ①	26S49	A-3019	AU-606	A-8092	26S49	S-5X	① Alternate Part #C-9.303

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Wilcox-Gay PART No.	QUAM PART No.	NOTES
SP2	4" x 6"	PM	3-4Ω	C-30.354-1	Q46A1	

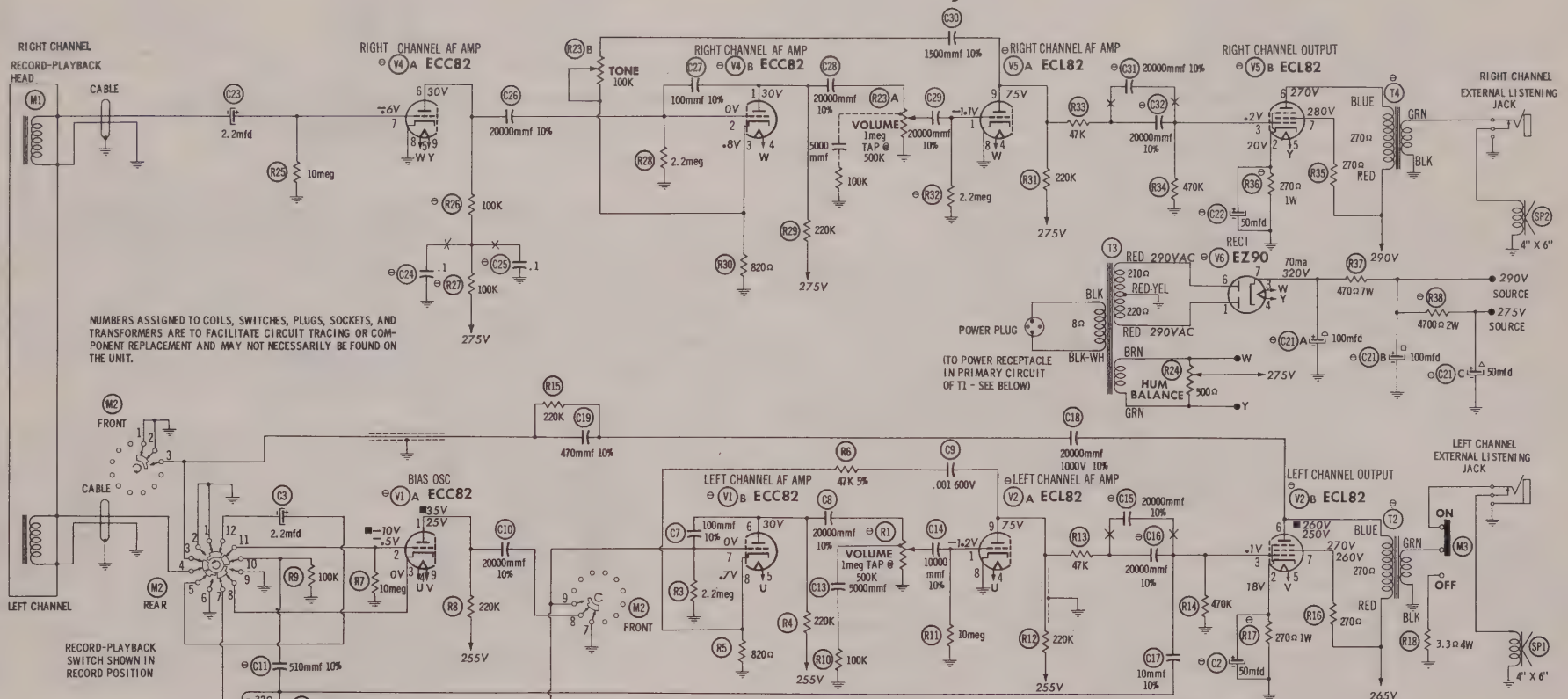
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	C-13.367-1	Volume On-Off Model 860
Knob	B-13.404	Bar, 3 Used, Models 860, 810
Knob	B-13.416-2	Volume, Model 810
Knob	B-13.417	Tone, Model 810
Button	B-32.434-1	Record Lock (Push pin)
Cabinet	8-2482-1	Model 860
Cabinet	8-2483-1	Model 810
Handle	87-3131-5	Includes Hardware, Model 810

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)


RIGHT CHANNEL
RECORD-PLAYBACK HEAD
CABLE
RIGHT CHANNEL AF AMP V4A ECC82
RIGHT CHANNEL AF AMP V4B ECC82
RIGHT CHANNEL AF AMP V5A ECL82
RIGHT CHANNEL OUTPUT V5B ECL82
RIGHT CHANNEL EXTERNAL LISTENING JACK
TONE 100K
VOLUME 1meg TAP @ 500K
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
RECT EZ90
POWER PLUG
(TO POWER RECEPTACLE IN PRIMARY CIRCUIT OF T1 - SEE BELOW)
HUM BALANCE 500Ω
275V SOURCE
290V SOURCE
FRONT
REAR
CABLE
LEFT CHANNEL
BIAS OSC V1A ECC82
LEFT CHANNEL AF AMP V1B ECC82
LEFT CHANNEL AF AMP V2A ECL82
LEFT CHANNEL OUTPUT V2B ECL82
LEFT CHANNEL EXTERNAL LISTENING JACK
ON
OFF
RECORD-PLAYBACK SWITCH SHOWN IN RECORD POSITION
RADIO-PHONO INPUT
MICROPHONE INPUT
SW ON VOLUME CONTROL
POWER RECEPTACLE (TO POWER PLUG IN PRIMARY CIRCUIT OF T3)
DRIVE MOTOR
265V SOURCE
255V SOURCE

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC82 12AU7	†225K	▪ 800K 10meg	▪ 15Ω 0Ω	150Ω	150Ω	†225K	2.2meg	820Ω	150Ω
V2	ECL82 6BM8	10meg	270Ω	470K	150Ω	150Ω	†750Ω	†750Ω	0Ω	†225K
V3	EZ90 6X4	440Ω	TP	150Ω	170Ω	TP	440Ω	¶		
V4	ECC82 12AU7	††225K	2.2meg	820Ω	†† 5200Ω	†† 5200Ω	†† 200K	10meg	0Ω	†† 5200Ω
V5	ECL82 6BM8	2.2meg	270Ω	470K	†† 5200Ω	†† 5200Ω	†† 740Ω	†† 740Ω	0Ω	†225K
V6	EZ90 6X4	220Ω	NC	†† 5200Ω	†† 5200Ω	NC	210Ω	¶		

RESISTANCE READINGS

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

ALL MEASUREMENTS TAKEN IN "PLAY" POSITION UNLESS OTHERWISE DESIGNATED.
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V3.
†† MEASURED FROM PIN 7 OF V6.
▪ MEASURED IN "RECORD" POSITION.
TP TIE POINT.
NC NO CONNECTION.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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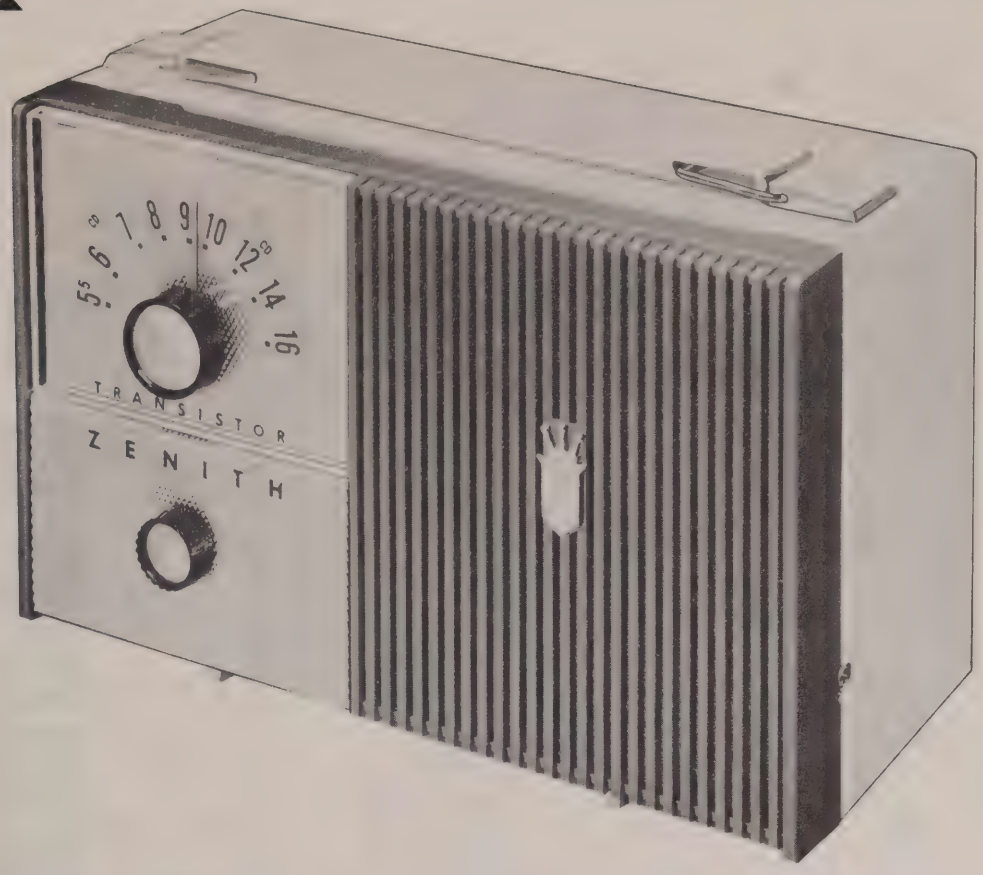
WILCOX-GAY MODELS 810, 860

PHOTOFACT* Folder with CIRCUITRACE*

ZENITH MODELS Royal 900G, P, W (Ch. 7AT44Z1)

ZENITH MODELS Royal 900G, P, W (Ch. 7AT44Z1)



ZENITH MODELS Royal 900G, P, W (Ch. 7AT44Z1)

TRADE NAME	Zenith Models Royal 900G, Royal 900P, Royal 900W (Ch. 7AT44Z1)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	Battery Operated Portable Transistorized AM Receiver
POWER SUPPLY	12 Volts DC — RATING 8.3MA @ 12 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A5 .... GENERAL CEMENT #8607, 9291
WALSCO #2520, 2522, 2523, 2524, 2537
A4, A6 ..... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿ Mod)	600KC	Across voice coil	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	Tuning gang fully open	"	A4	"
3.		"	535KC	Tuning gang fully closed	"	A5	Adjust for maximum output. Repeat steps 2 and 3.
4.		"	1260KC	Tune to 1260KC signal	"	A6	Adjust for maximum output.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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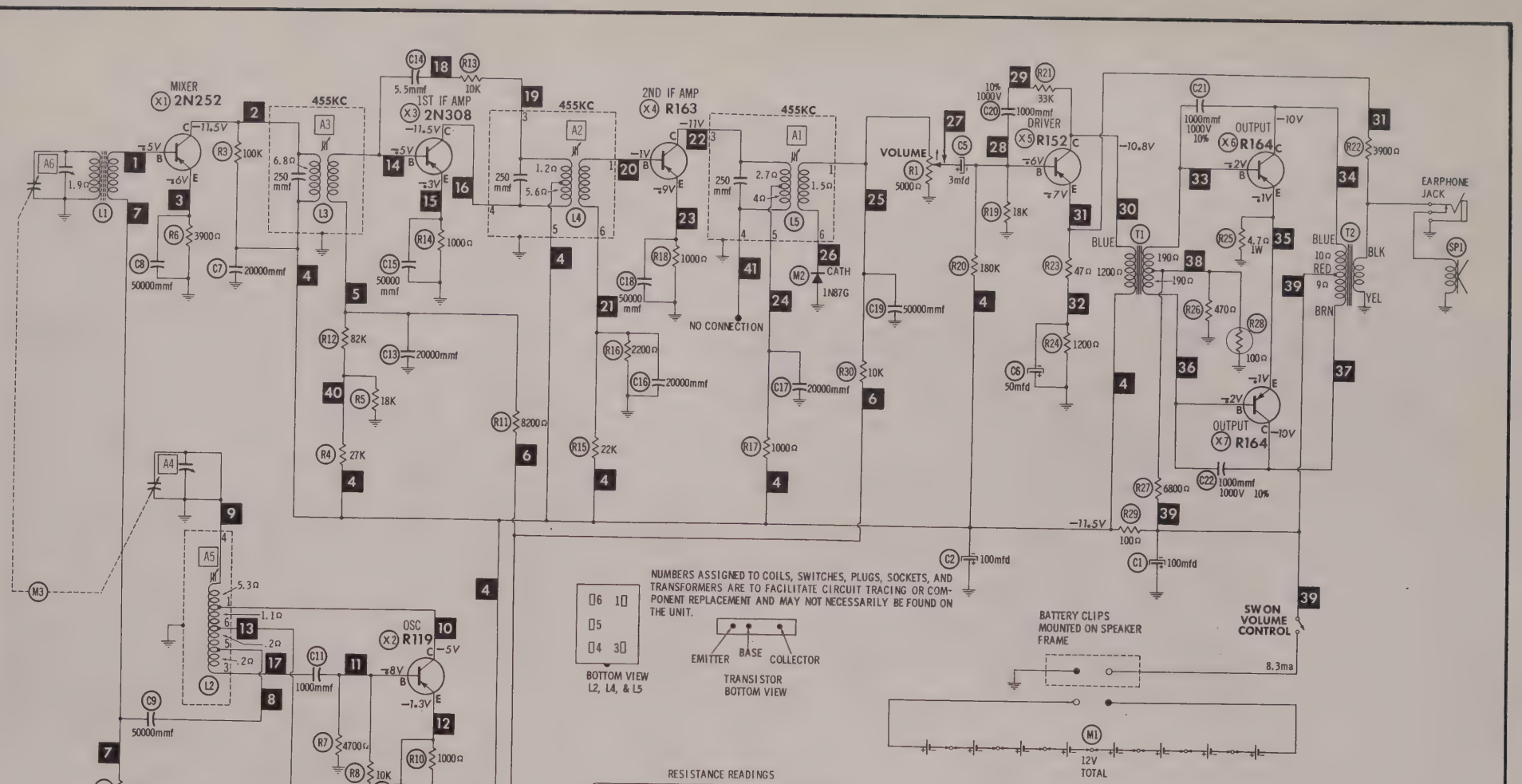
H975

SET 448 FOLDER 15



NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE READINGS

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N252	12K	3900Ω	†100Ω
X2	R119	4300Ω	1000Ω	†4800Ω
X3	2N308	18K	1000Ω	†100Ω
X4	R163	2200Ω	1000Ω	†1100Ω
X5	R152	18K	1200Ω	†1300Ω
X6	R164	280Ω	4.7Ω	†10Ω
X7	R164	280Ω	4.7Ω	†9Ω

TRANSISTORS REMOVED FOR RESISTANCE MEASUREMENTS
† MEASURED FROM JUNCTION OF R27, R29 & C1.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE®

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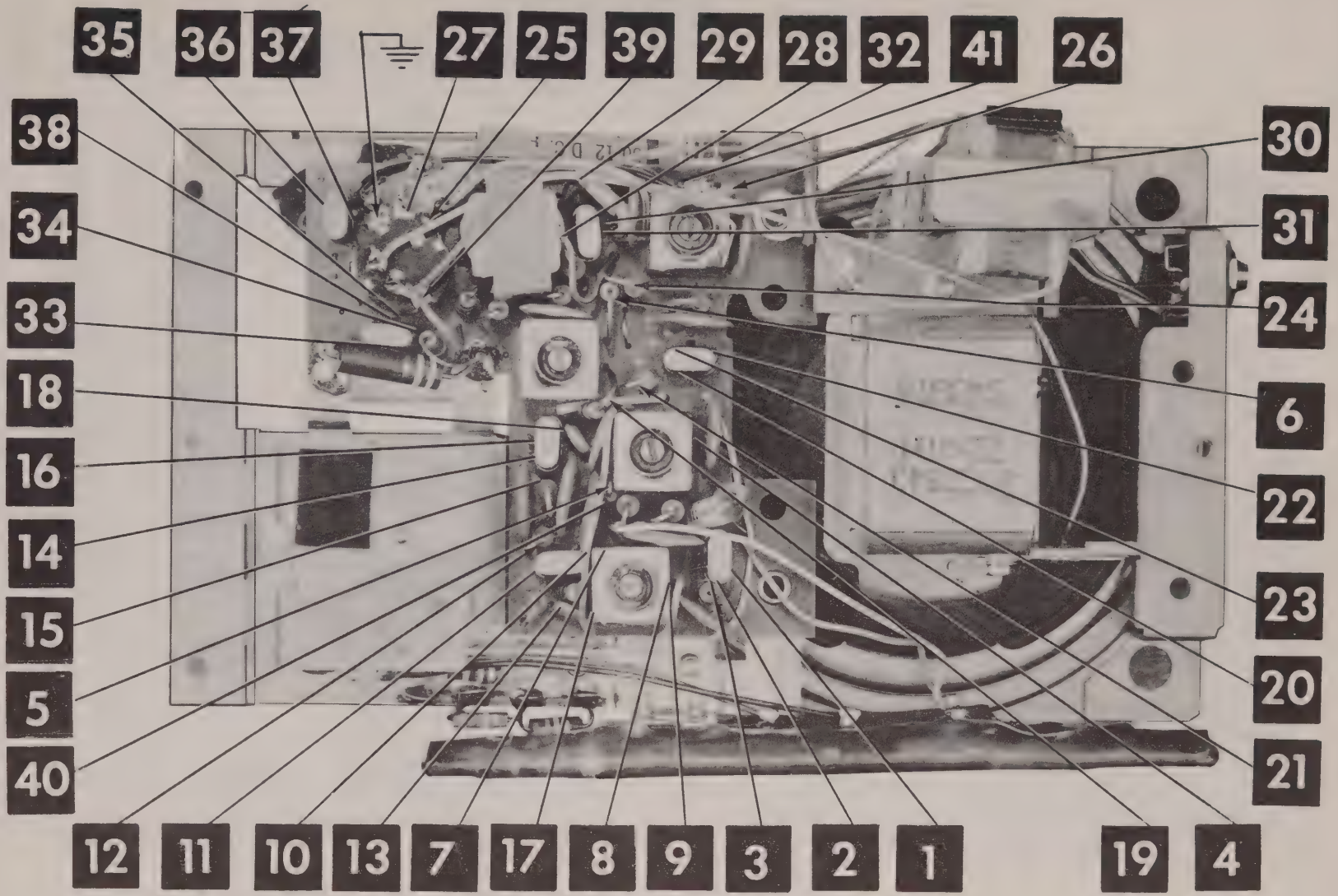
ZENITH MODELS Royal 900G, P, W (Ch. 7AT44Z1)



A Howard W. Sams CIRCUITRACE* Photo

PRINTED BOARD

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	500Ω CT	3-4Ω	95-1605							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-843	4A1	

BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	12V	Z-7 ①		1 ①		935 ①		M-14 ①	① 8 Used.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		ZENITH PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N87G	103-19	1N60	1N60	Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuning Cap.	22-3054	2 Gang (Ant. 10-170mmf, Osc. 8-95mmf)

CABINETS & CABINET PARTS

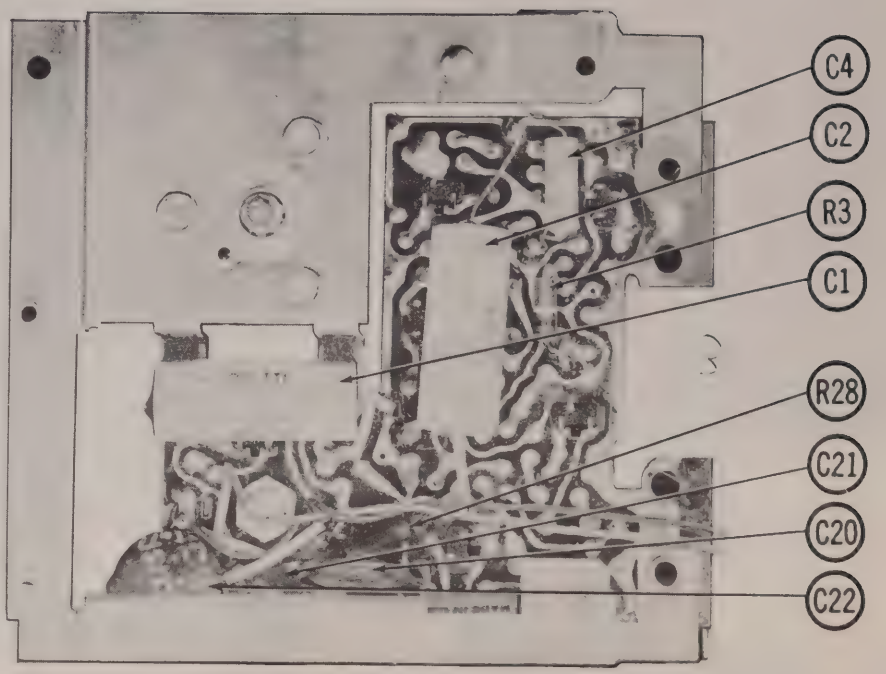
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	46-1945	Tuning
Knob	46-1946	Volume-On-Off

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

PRINTED BOARD - BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N252	Mixer			2N486		PNP
X2	R119	Oscillator			2N485		PNP
X3	2N308	1st IF Amp.			2N483		PNP
X4	R163	2nd IF Amp.			2N483		PNP
X5	R152	Driver			2N362		PNP
X6	R164	Output			2N360		PNP Matched
X7	R164	Output			2N360		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	12	22-3047	SRE12V100	BBR100-15	TT15X100	ML100-15	TE-1135	
C2	100	12	22-3047	SRE12V100	BBR100-15	TT15X100	ML100-15	TE-1135	
C3	3	12	22-2884	XPP-12003	NL3-10	TT12X3	ML2-15	TE-1122	
C4	3	12	22-2884	XPP-12003	NL3-10	TT12X3	ML2-15	TE-1122	
C5	3	12	22-2884	XPP-12003	NL3-10	TT12X3	ML2-15	TE-1122	
C6	50	12	22-2883	SRE12V50	BBR50-25	TT15X50	ML50-15	TE-1133	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	20000			22-2885	BPD-02	DD-203	BYA6S2	B-120	5HK-S2	
C8	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C9	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C10	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C11	1000			22-2729	BPD-001	DD-102	BYA10D1	B-210	5HK-D1	
C12	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C13	20000			22-2885	BPD-02	DD-203	BYA6S2	B-120	5HK-S2	
C14	5.5			22-3053						
C15	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C16	20000			22-2885	BPD-02	DD-203	BYA6S2	B-120	5HK-S2	
C17	20000			22-2885	BPD-02	DD-203	BYA6S2	B-120	5HK-S2	
C18	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C19	50000			22-2728	BPD-05	DF-503	H-05S5		5HK-S5	
C20	1000	1000	10%	22-17				JL-210	5HK-D1S 10% *	
C21	1000	1000	10%	22-17				JL-210	5HK-D1S 10% *	
C22	1000	1000	10%					JL-210	5HK-D1S 10% *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	63-4071					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R2	1000Ω		63-1786	
R3	100K		63-1870	
R4	27K		63-1845	
R5	18K		63-1838	
R6	3900Ω		63-1810	
R7	4700Ω		63-1813	
R8	10K		63-1827	
R9	4700Ω		63-1813	
R10	1000Ω		63-1786	
R11	8200Ω		63-1824	
R12	82K		63-1866	
R13	10K		63-1827	
R14	1000Ω		63-1786	
R15	22K		63-1841	
R16	2200Ω		63-1799	

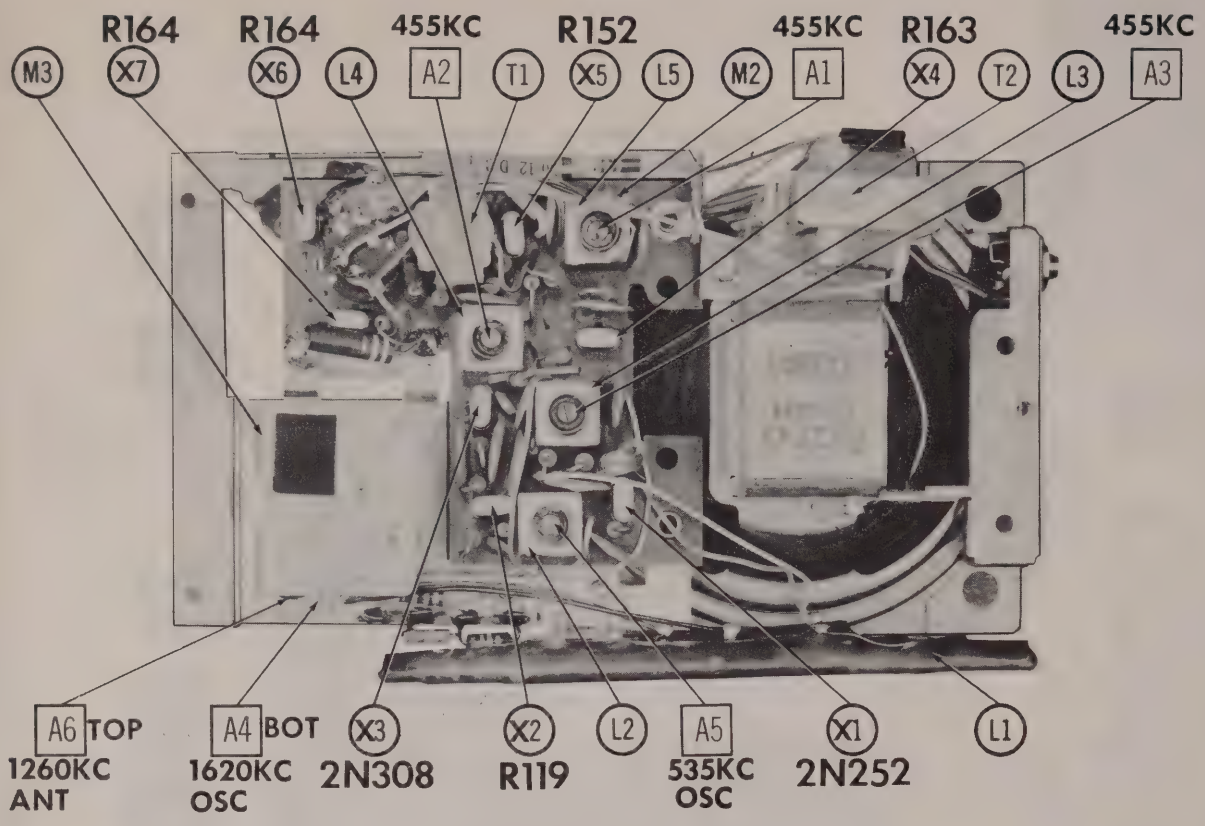
ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R17	1000Ω		63-1786	
R18	1000Ω		63-1786	
R19	18K		63-1838	
R20	180K		63-1880	
R21	33K		63-1848	
R22	3900Ω		63-1810	
R23	47Ω		63-1729	
R24	1200Ω		63-1789	
R25	4.7Ω	1	63-3665	
R26	470Ω		63-1771	
R27	6800Ω		63-1820	
R28	100Ω		63-3663	
R29	100Ω		63-1744	
R30	10K		63-1827	

COILS (RF-IF)

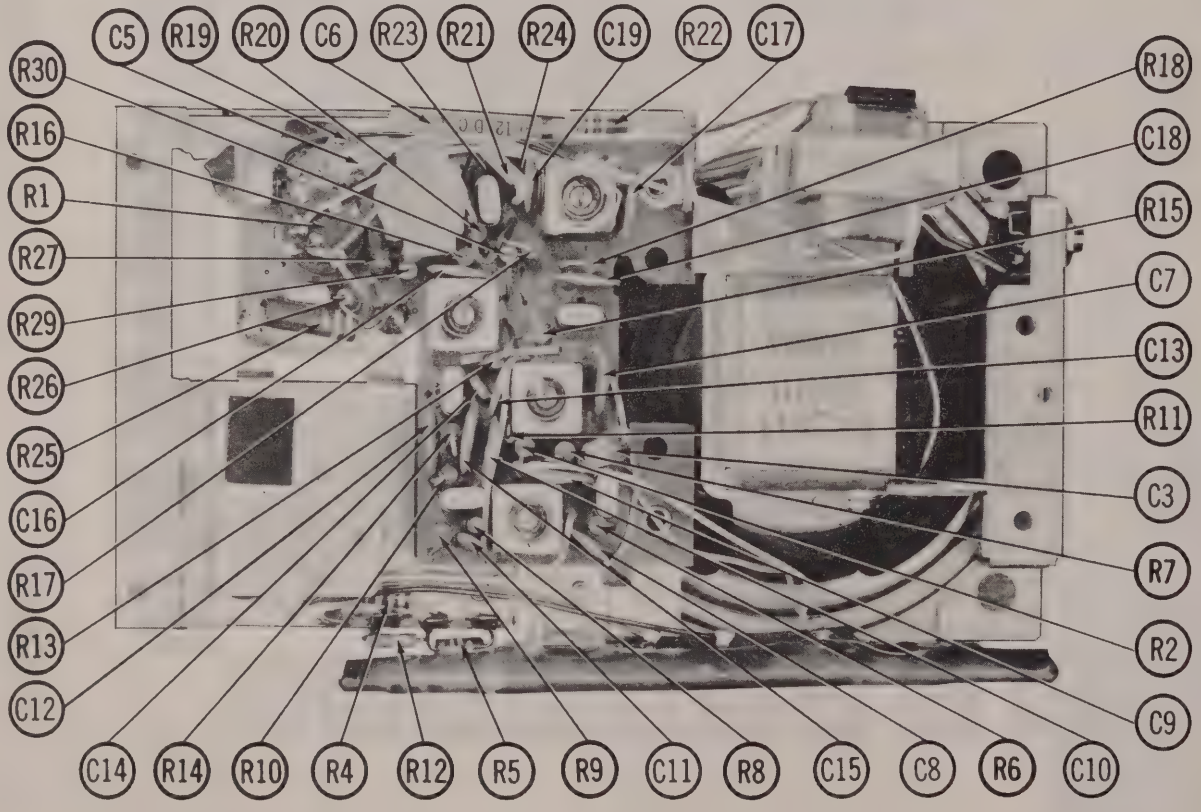
ITEM No.	USE	REPLACEMENT DATA						NOTES
		ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loopstick	S-43448						* Remove Pin 6
L2	Osc. Coil	95-1513	14-9006	14-9006				
L3	1st IF Trans.	95-1600	16-9003 *	16-9003 *				
L4	2nd IF Trans.	95-1601	16-9003	16-9003				
L5	3rd IF Trans.	95-1602	16-9004	16-9004				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2 :	1	95-1587	TR-7			TR-7		



CHASSIS-TOP VIEW



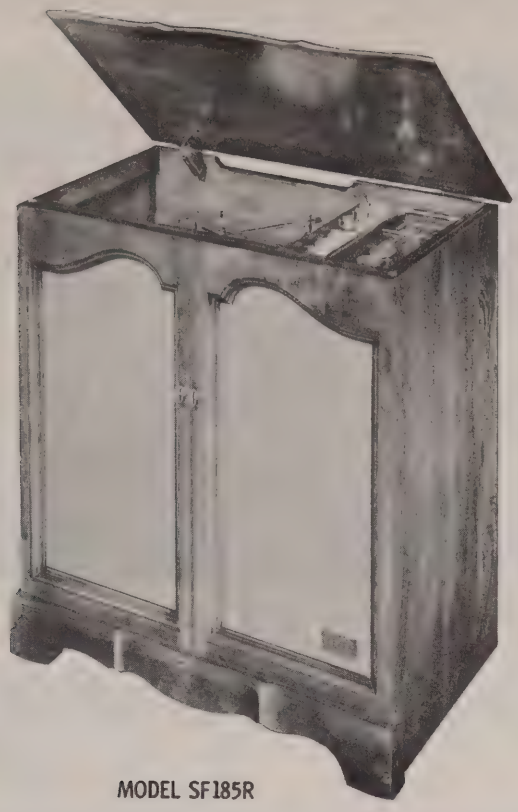
CHASSIS-TOP VIEW

PHOTOFACT* Folder

EIA MEMBER

ZENITH MODELS SF183H, R, SF185M, R, SF188, E, R (Ch. 3B31, 9B22, 9B23)

ZENITH MODELS SF183H, R, SF185M, R, SF188, E, R (Ch. 3B31, 9B22, 9B23)



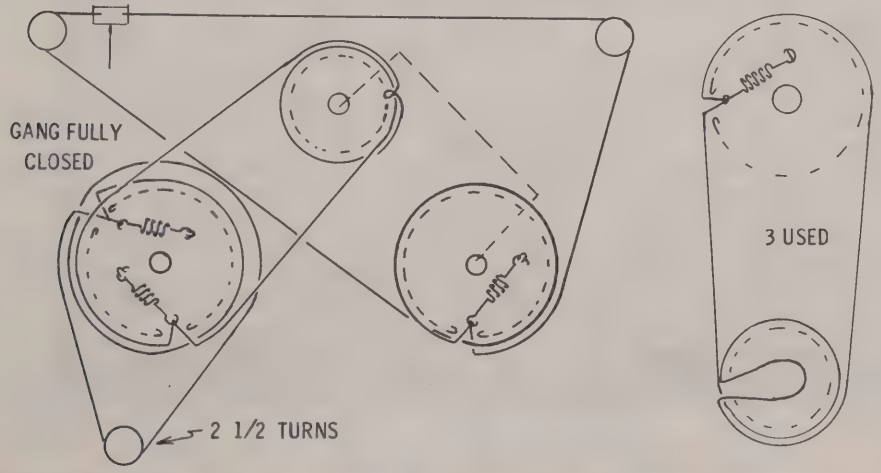
MODEL SF185R

ZENITH MODELS SF183H, R, SF185M, R, SF188, E, R (Ch. 3B31, 9B22, 9B23)

TRADE NAME	Zenith Models SF183H, SF183R, SF185M, SF185R, SF188, SF188E, SF188R (Ch. 3B31, 9B22, 9B23)		
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois		
TYPE SET	AC Operated 12 Tube FM-AM Tuner and Amplifier with 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	125 Watts, 1.15 Amp. @ 117 Volts AC
TUNING RANGE	BROADCAST 535-1620KC	FREQ. MOD.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER S-14090 OR S-14093 - SEE ZENITH S-14086 - PHOTOFACT SET 402 FOLDER 15

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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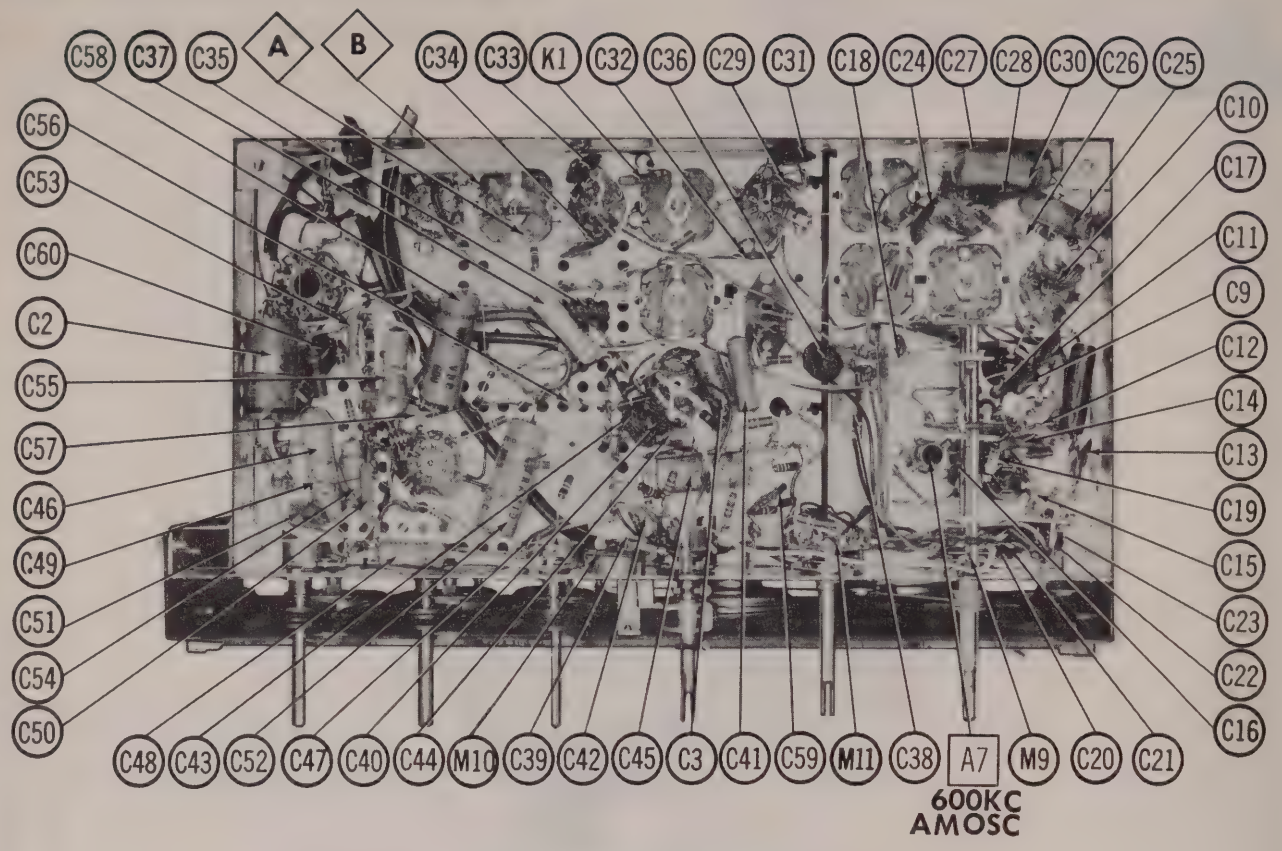
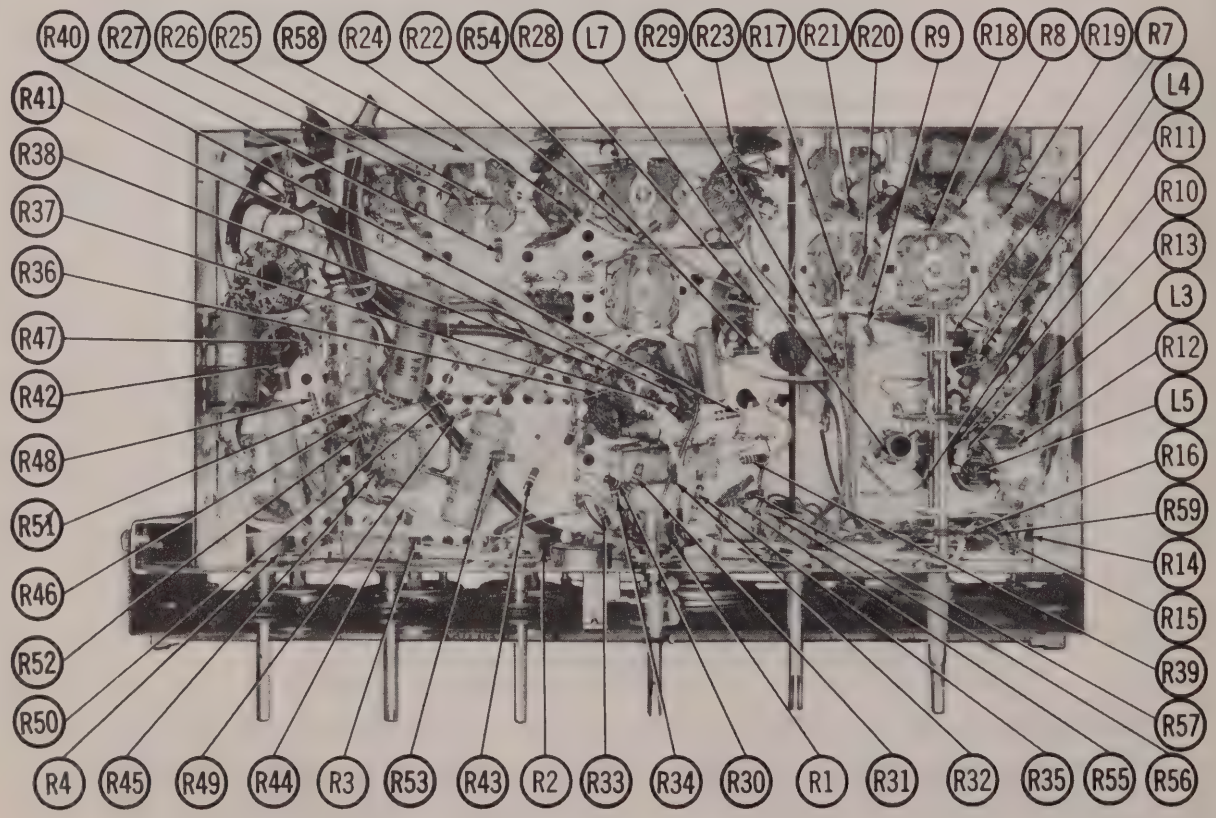
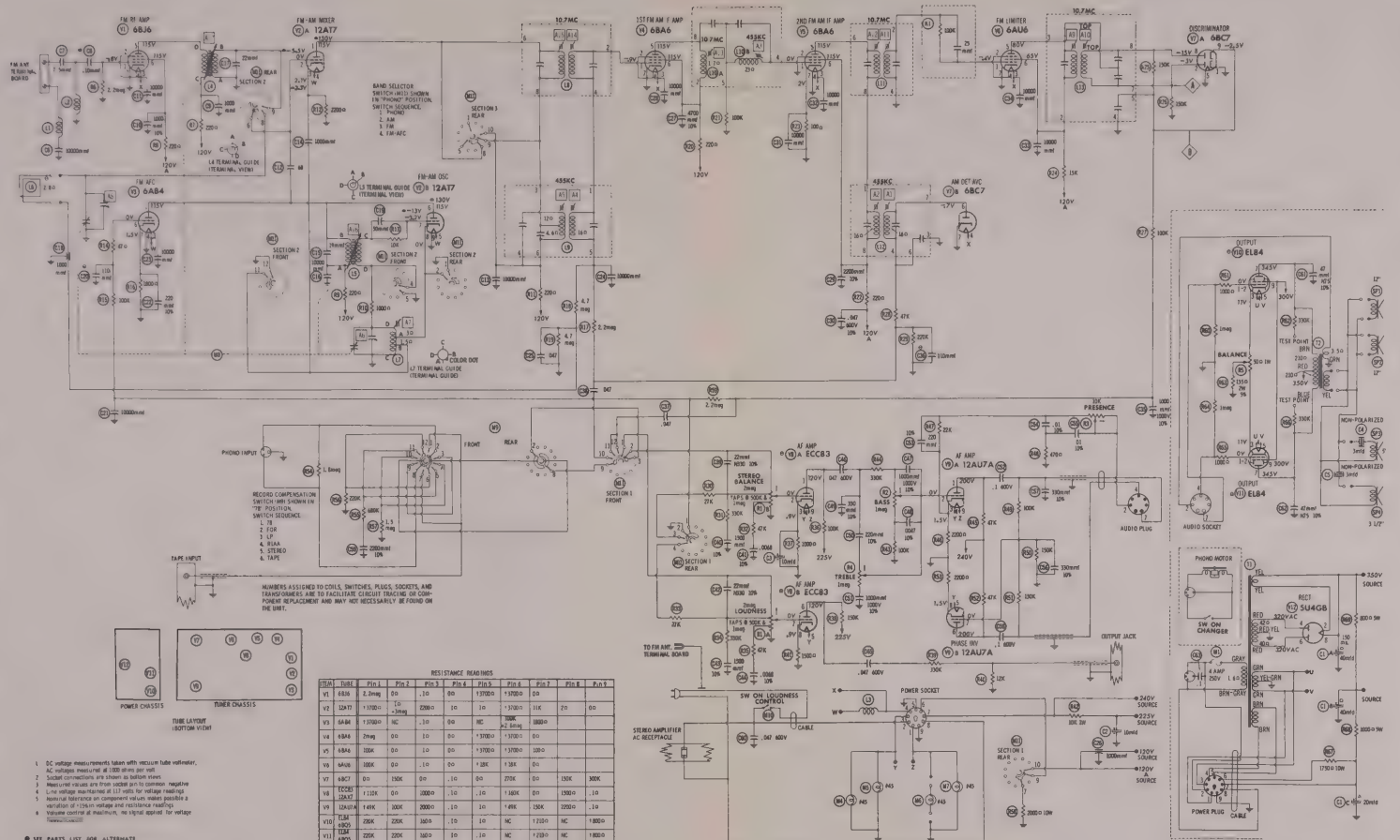


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	R .2meg	0Ω	.1Ω	0Ω	†370Ω	†370Ω	0Ω		
V2	12AT7	†370Ω	.1Ω -.2meg	220Ω	1Ω	1Ω	†370Ω	11K	2Ω	0Ω
V3	6AB4	†370Ω	NC	.1Ω	0Ω	NC	100K ±2.5meg	1800Ω		
V4	6BA6	2meg	0Ω	1Ω	0Ω	†370Ω	†370Ω	0Ω		
V5	6BA6	100K	0Ω	1Ω	0Ω	†370Ω	†370Ω	100Ω		
V6	6AU6	100K	0Ω	.1Ω	0Ω	‡18K	‡18K	0Ω		
V7	6BC7	0Ω	150K	0Ω	.1Ω	0Ω	270K	0Ω	150K	300K
V8	ECC83 (2nd)	†110K	0Ω	2000Ω	.1Ω	1Ω	†160K	0Ω	1500Ω	.1Ω
V9	12AU7A	†49K	300K	2000Ω	.1Ω	1Ω	†49K	150K	2250Ω	.1Ω
V10	EL84 (PO)	220K	220K	160Ω	.1Ω	1Ω	NC	†210Ω	NC	†800Ω
V11	EL84 (PO)	220K	220K	160Ω	1Ω	.1Ω	NC	†210Ω	NC	†800Ω
V12	5U4GB	NC	¶	TP	420	TP	420	TP	¶	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
+ MEASURED IN "AM" POSITION.
* MEASURED IN "FM-AFC" POSITION.
NC NO CONNECTION TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1200 ohms per volt
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC OHM RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ZENITH MODELS SF183H, R, SF185M, R, SF188, E, R (Ch. 3B31, 9B22, 9B23)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1 thru A5, A7, A9 thru A15..... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545

A6, A8..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005mfd	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	455KC (400~ Mod.)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4 A5	Adjust for maximum output.
2.	"	High side to AM antenna stator lug of tuning gang. Low side to chassis.	1600KC	"	1600KC	"	A6	"
3.		Loop	600KC	"	600KC	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1400KC	"	1400KC	"	A8	Adjust for maximum output. Repeat steps 2, 3 and 4.

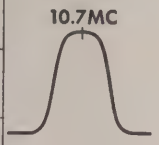


FIG. 1

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.05mfd	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	10.7MC (Unmod.)	FM	Point of non-interference	DC probe thru 1meg to point (A). Common to chassis.	A9	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe thru 1meg to point (B). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
7.	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	DC probe thru 1meg to point (A). Common to chassis.	A11, A12, A13, A14, A15	Adjust for maximum deflection.

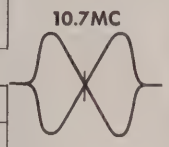


FIG. 2

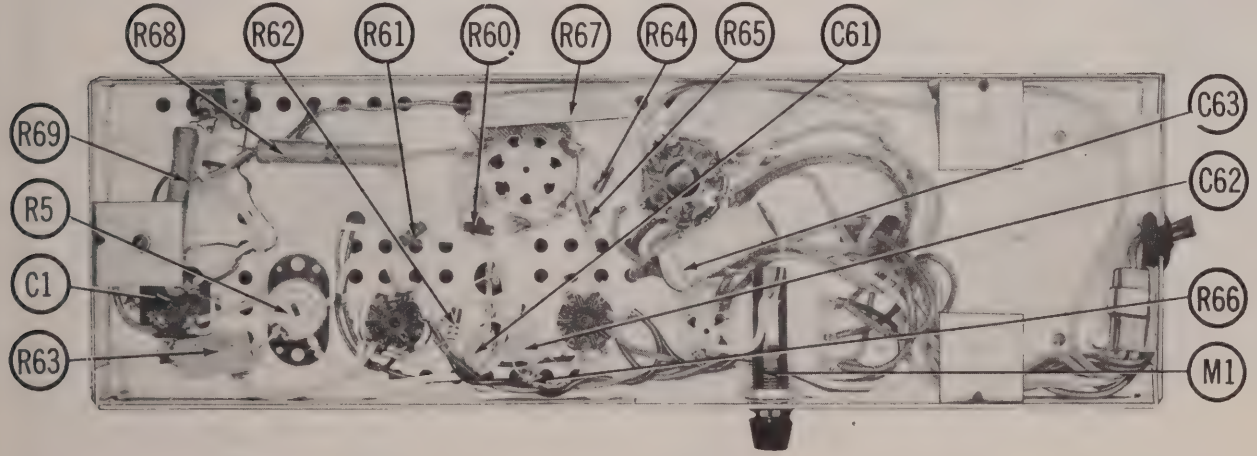
FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.05mfd	High side to pin 1 (grid) of 6AU6 (V6). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A9	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A10	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.
7.	"	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	"	"	"	Vert. Amp. to point (A). Low side to chassis.	A11, A12, A13, A14, A15	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	98MC (Unmod.)	FM	98MC	DC probe thru 1meg to point (A). Low side to chassis.	A16, A17	Adjust for maximum deflection.

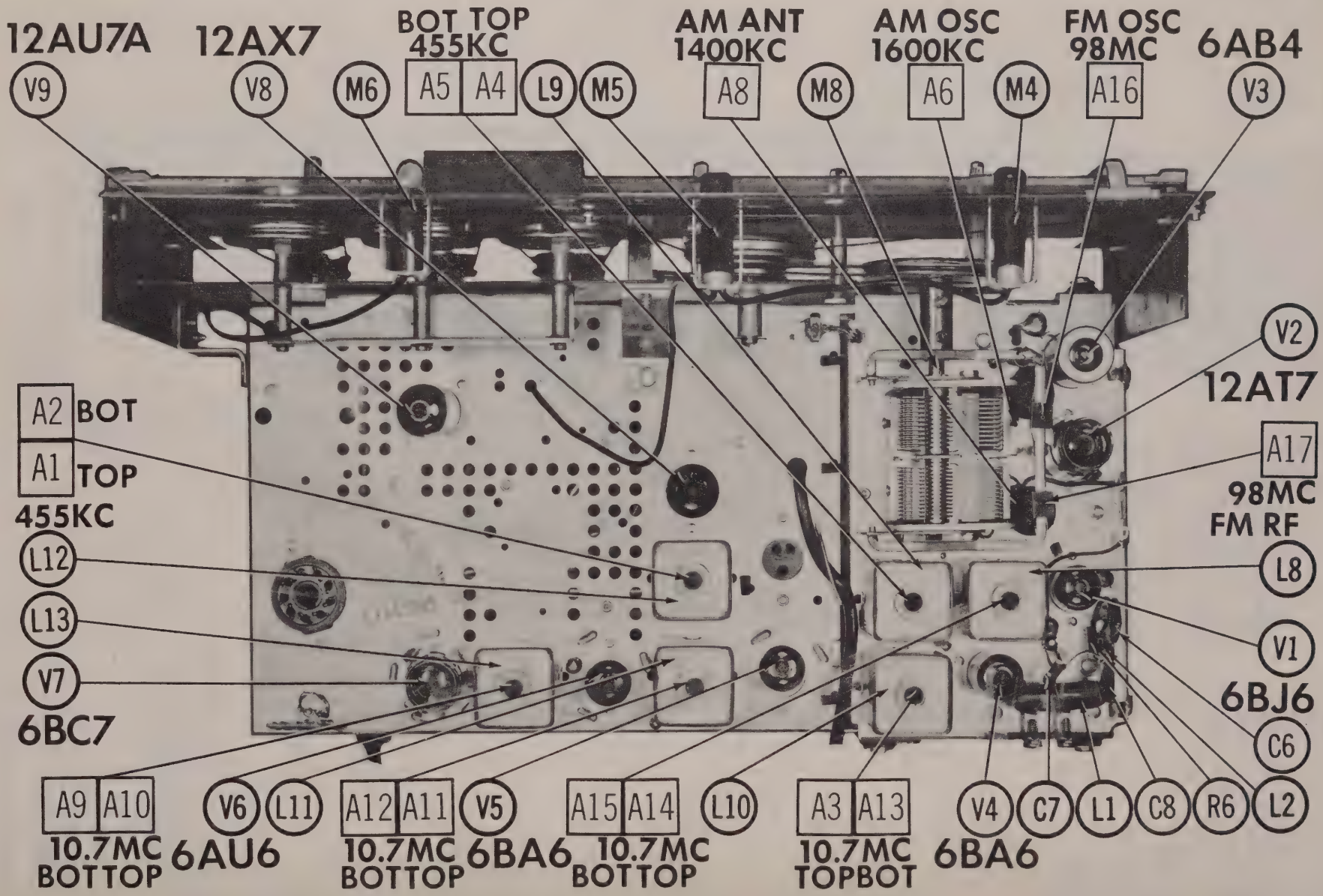


POWER CHASSIS-BOTTOM VIEW

SET 448 FOLDER 16

ZENITH MODELS SF183H, R, SF185M, R, SF188, E, R (Ch. 3B31, 9B22, 9B23)

FOLDER 16



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BJ6	
V2	FM AM Mixer-FM AM Osc.	12AT7	
V3	FM AFC	6AB4	
V4	1st FM-AM IF Amplifier	6BA6	
V5	2nd FM-AM IF Amplifier	6BA6	
V6	FM Limiter	6AU6	

ITEM No.	USE	TYPE	NOTES
V7	Disc.-AM Det.-AVC	6BC7	
V8	AF Amplifier	ECC83/12AX7	
V9	AF Amp. - Phase Inverter	12AU7A	
V10	Output	EL84/6BQ5	
V11	Output	EL84/6BQ5	
V12	Rectifier	5U4GB	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1A	▲40	450	22-3046	AFH3-43-50	C0344	FP376.9	TMT-39	TVL-3786	
B	■40	450							
C	▲20	350							
C2	10	350	22-2740	PRS350V10	BR1045	TC62	TD-10-450	TVA-1608	
C3	10	25	22-3076	PRS25V10	BBR10-25	TC22	TD-10-25	TVA-1204	
C4	3	30NP	22-2945	NP-PRS50V4	BBR5-50 † BBR5-50 †	TCN503	TD-5-50 † TD-5-50 †	TVAS-1215 *	
C5	3	30NP	22-2945	NP-PRS50V4	BBR5-50 † BBR5-50 †	TCN503	TD-5-50 † TD-5-50 †	TVAS-1215 *	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
† Connect negative leads together.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C7	7.5			22-1852					5GA-V75	
C8	110				BPD-0001	DD-101	L10T1	B-310	5GA-T1	①
C9	1000			22-1676	SI 1000	DD-102	LT6D1	UC-521	5GA-D1	
C10	1000		10%	22-1676					5GA-D1S 10% *	
C11	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C12	.68			22-1766		TCZ-R68				
C13	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C14	1000			22-1876	SI 1000	D6-102	LT6D1	UC-521	5HK-D1	
C15	19			22-2630					5GA-Q19S *	
C16	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C17	22			22-1506	SI 22	D6-220	LT6Q22	UC-5422	5GA-Q22	
C18	1000			22-2732	EF-001	MFT-1000			503C-D1	
C19	50			22-1367	SI 50	D6-500	L10Q5	UC-545	5GA-Q5	
C20	110				BPD-0001	DD-101	L10T1	B-310	5GA-T1	①
C21	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C22	220		10%	22-2321	DI-220	D6-221	L10T22	JL-322	5GA-T22S 10% *	
C23	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C24	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C25	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C26	1000			22-2732	EF-001	MFT-1000			503C-D1	
C27	4700		10%	22-14	DI-4700			JL-247	5GA-D47S 10% *	
C28	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C29	2200		10%	22-18	DI-2200			JL-222	5GA-D22S 10% *	
C30	.047	600	10%	22-2797					6TM-S47S 10% *	
C31	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C32	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C33	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C34	10000			22-3	BPD-01	DD-103	BYA10S1	B-110	5HK-S1	
C35	1000	1000	10%	22-17				JL-210	5GA-D1S 10% *	
C36	110				BPD-0001	DD-101	L10T1	B-310	5GA-T1	①
C37	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C38	.047	200		22-2792	P288N-047	DF-503	CUB2S47	GEM-2147	2TM-S47	
C39	22		N330 10%	22-2825						
C40	1500		10%	22-12	DI-1500			JL-215	5GA-D15S 10% *	
C41	.0068	200	10%	22-2819				GEM-16268	5BF-D68	
C42	22		N330 10%	22-2825						
C43	1500		10%	22-12	DI-1500			JL-215	5GA-D15S 10% *	
C44	.0068	200	10%	22-2819				GEM-16268	5BF-D68	

CAPACITORS (cont)

ITEM No.	RATING			REPLACEMENT DATA						NOTES
	CAP.	VOLT	TOL	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C45	.047	600		22-2797	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C46	.047	600		22-2797	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C47	1000	1000	10%	22-17				JL-210	5GA-D1S 10% *	
C48	.0047	200	10%	22-2825				GEM-16247	5BF-D47	
C49	330		10%	22-2309	DI-330	D6-331	L10T33	JL-333	5GA-T33S 10% *	
C50	220		10%	22-2321	DI-220	D6-221	L10T22	JL-322	5GA-T22S 10% *	
C51	1000	1000	10%	22-17				JL-210	5GA-D1S 10% *	
C52	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C53	220		10%			D6-221	L10T22	JL-322	5GA-T22S 10% *	
C54	.01	200	10%	22-2813				GEM-211	2WF-S10	
C55	.01	200	10%	22-2813				GEM-211	2WF-S10	
C56	330		10%	22-2309			L10T33	JL-333	5GA-T33S 10% *	
C57	330		10%	22-2309			L10T33	JL-333	5GA-T33S 10% *	
C58	.1	600		22-2782	P688N-1	DF-104	CUB6P1	GEM-601	6TM-P1	
C59	2200		10%	22-18	DI-2200			JL-222	5GA-D22S 10% *	
C60	.047	600		22-2569	P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C61	47		N75 10%	22-2376						
C62	47		N75 10%	22-2376						
C63	.1	400			P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	

① Some versions may use 100mmf in this application (Part #22-5).
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	63-4383				† UE3958	Loudness, Tap② 500K, 1meg
B	2meg	½						Stereo-Balance, Tap② 500K,
R2A	1meg	½	63-4384	AB-70	A47-1meg-Z	Q13-137		Bass 1meg
B	Shaft			AK-7	FS-3	Not Req.		
R3A	10K	½	63-4386	AB-14	A47-10K-Z	Q11-176		Presence
B	Shaft			AK-7	FS-3	Not Req.		
R4A	1meg	½	63-4385	AB-69	A47-1meg-S	Q11-137		Treble
B	Shaft			AK-7	FS-3	Not Req.		
R5	50Ω	1(WW)	63-4402	WN-500 Not Req.	A43-50 FKS-1/4	WPK50 Not Req.	C50P Not Req.	Balance Control

† "STA-LOC" Equivalent: FC26DT16, RU26DT125, OS1750, IK2312.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R6	2.2meg		63-1926	
R7	220Ω		63-1758	
R8	220Ω		63-1758	
R9	220Ω		63-1758	
R10	1000Ω		63-1785	
R11	220Ω		63-1758	
R12	2200Ω		63-1799	
R13	10K		63-1827	
R14	47Ω		63-1730	
R15	100K		63-1869	
R16	1800Ω		63-1796	
R17	2.2meg		63-1926	
R18	4.7meg		63-1940	
R19	4.7meg		63-1940	
R20	220Ω		63-1758	
R21	100K		63-1869	
R22	220Ω		63-1758	
R23	100Ω		63-1743	
R24	15K		63-1835	
R25	150K		63-1876	
R26	150K		63-1876	
R27	100K		63-1869	

ITEM No.	RATING		ZENITH PART No.	NOTES
	OHMS	WATT		
R28	47K		63-1855	
R29	220K		63-1883	
R30	27K		63-1845	
R31	330K		63-1890	
R32	47K		63-1855	
R33	27K		63-1845	
R34	330K		63-1890	
R35	47K		63-1855	
R36	100K		63-1869	
R37	1000Ω		63-1785	
R38	150K		63-1876	
R39	330K		63-1890	
R40	12K			
R41	1500Ω		63-1792	
R42	10K	1	62-1216	
R43	100K		63-1869	
R44	330K		63-1890	
R45	47K		63-1855	
R46	2200Ω		63-1799	
R47	22K		63-1841	
R48	470Ω		63-1771	
R49	100K		63-1869	

PARTS LIST & DESCRIPTION (continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R50	150K		63-1876	
R51	150K		63-1876	
R52	47K		63-1855	
R53	2200Ω		63-1799	
R54	1.8meg		63-1922	
R55	680K		63-1904	
R56	220K		63-1883	
R57	1.5meg		63-1918	
R58	2000Ω	10	63-4414	
R59	2.2meg		63-1926	

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R60	1meg		63-1912	
R61	1000Ω		63-1785	
R62	330K		63-1890	
R63	135Ω 5%	2	63-4397	
R64	1meg		63-1912	
R65	1000Ω		63-1785	
R66	330K		63-1891	
R67	1750Ω	10	63-4413	
R68	1000Ω	5	63-4425	
R69	800Ω	5	63-4393	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA ZENITH PART No.	Gramer PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	RF Choke	20-337	19-1003	19-1003	BC-537	4608		4.2uh
L2	FM Ant. Coil	20-682	19-1000	19-1000	BC-561	4602		
L3	Fil. Choke	20-337	19-1003	19-1003	BC-537	4608		4.2uh
L4	FM RF Tuning Coil	S-15743						
L5	FM Osc. Tuning Coil	S-15691						
L6	Loop Ant.	S-40795						Note 1
L7	AM Osc. Coil	S-42847						
L8	1st FM IF Trans.	95-1150	16-3487 *	16-3487 *	FM-251 ▲	1451 ▲		
L9	1st AM IF Trans.	95-1250						
L10A B	2nd FM IF Trans. 2nd AM IF Trans.	95-1251						
L11	3rd FM IF Trans.	95-1150	16-3487 *	16-3487 *	FM-251 ▲	1451 ▲		
L12	3rd AM IF Trans.	95-1102	16-6770 *	16-6770 *	BC-355 *	12-C6 *		
L13	Discriminator	95-1153						

Note 1. Part #S-44649 used in SF183 and SF185 Series. * Remove center bolt mounting plate and use adapter plate.
▲ Enlarge mounting holes.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ 1.15A	640VCT @ .150A	5V @ 3A	95-1633	22R06 ①				22R06 ①	
	SEC. 3	SEC. 4	SEC. 5							
	6.3VCT @ 2.5A	6.3V @ 2A								

① Use original shields

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	REPLACEMENT DATA ZENITH PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6000Ω CT	60Ω SEC.2 3-4Ω	95-1625							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ZENITH PART No.	QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	49-861	12A4Z5.8	
SP2	12"	PM	6-8Ω	49-860	12A4Z5.8	
SP3	5"	PM	3-4Ω	49-856	5A1Z3.4	
SP4	3½"	PM	12-14Ω	49-846	3A15T	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ZENITH PART No.	REPLACEMENT DATA
K1	Limiter Grid	25mmf, 100K	105-42	Sprague PRC-11

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ZENITH PART No. FUSE	ZENITH PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	4A 250V	136-31	62-17 15-115(CAP)	312004. (3AG 4A 250V)	342001	MTH4	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA ZENITH PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	JENSEN PART No. CARTRIDGE	JENSEN PART No. NEEDLE	REMARKS
M2	142-92 ①	13-TB ②				① Includes needles. ② Includes needles and mounting mechanism.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA ZENITH PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3		† E-98 or ♦ E-98D † E-98X or ♦ E-98XD	† W-102S * † W-101STS * or ♦ W-101STD *	* Includes cartridge † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M4	Lamp	100-221	#45
M5	Lamp	100-221	#45
M6	Lamp	100-221	#45
M7	Lamp	100-221	#45
M8	Tuning Cap.	22-3019	AM, 2 Gang (Ant. 20-457mmf, Osc. 30-195mmf)
M9	Switch	85-611	Record Compensation (6 Position, Rotary Wafer Type)
M10	Switch	85-613	Power On-Off (SPST, Rotary Snap Type)
M11	Switch	85-614	Bank Selector (4 Position, Rotary Wafer Type)

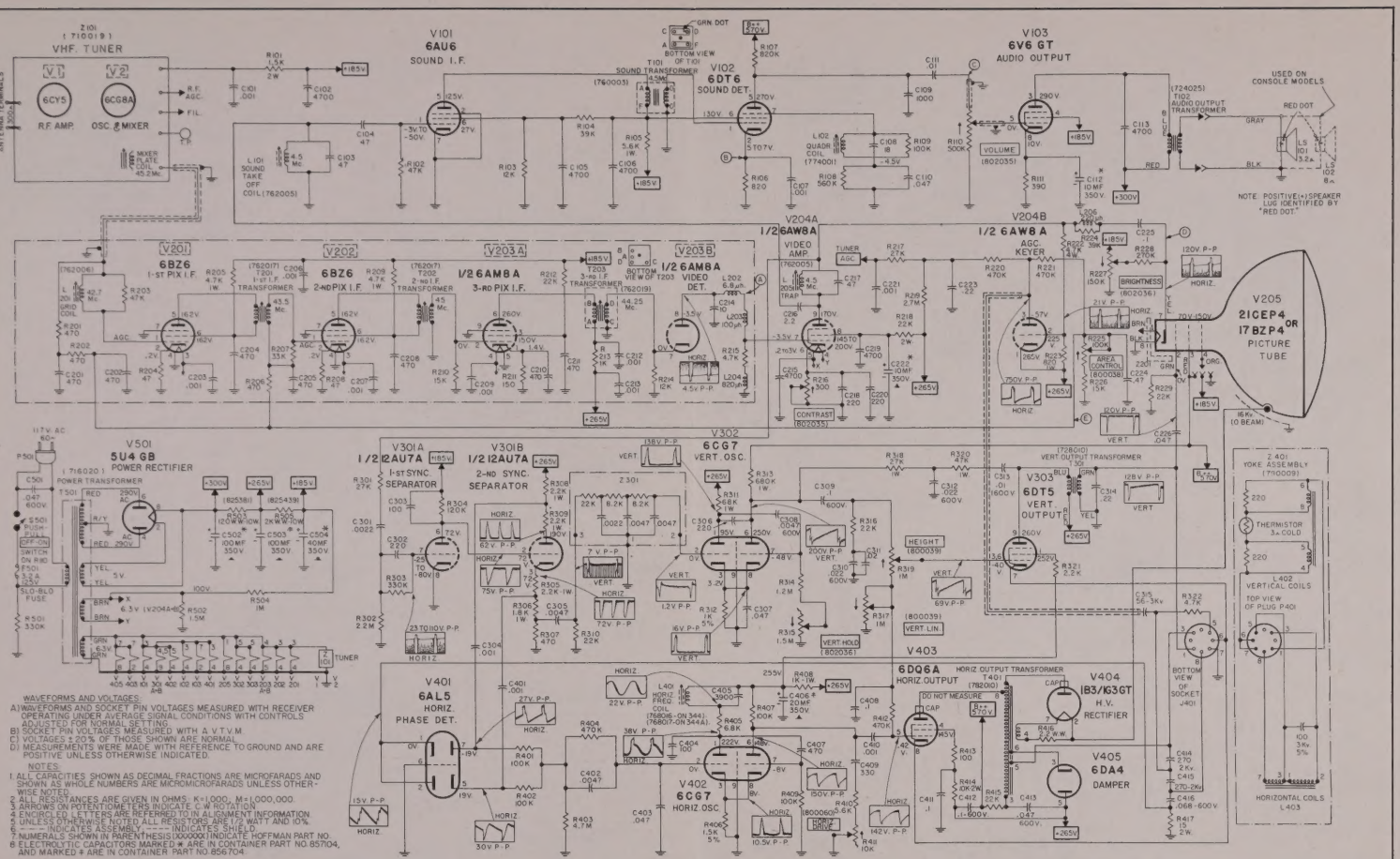
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	S-44166	Tuning, Includes Ring Assembly
Knob	46-2097	Volume
Knob	46-1997	Volume, Remote
Knob	46-2080	Radio-Phono-Record Compensator
Knob	S-44167	Presence, Bass, Treble, Includes Retaining Ring Assembly
Dial Crystal	192-254	Models SF183, SF185, Series
Dial Crystal	192-269	Model SF188 Series

WIRING DATA

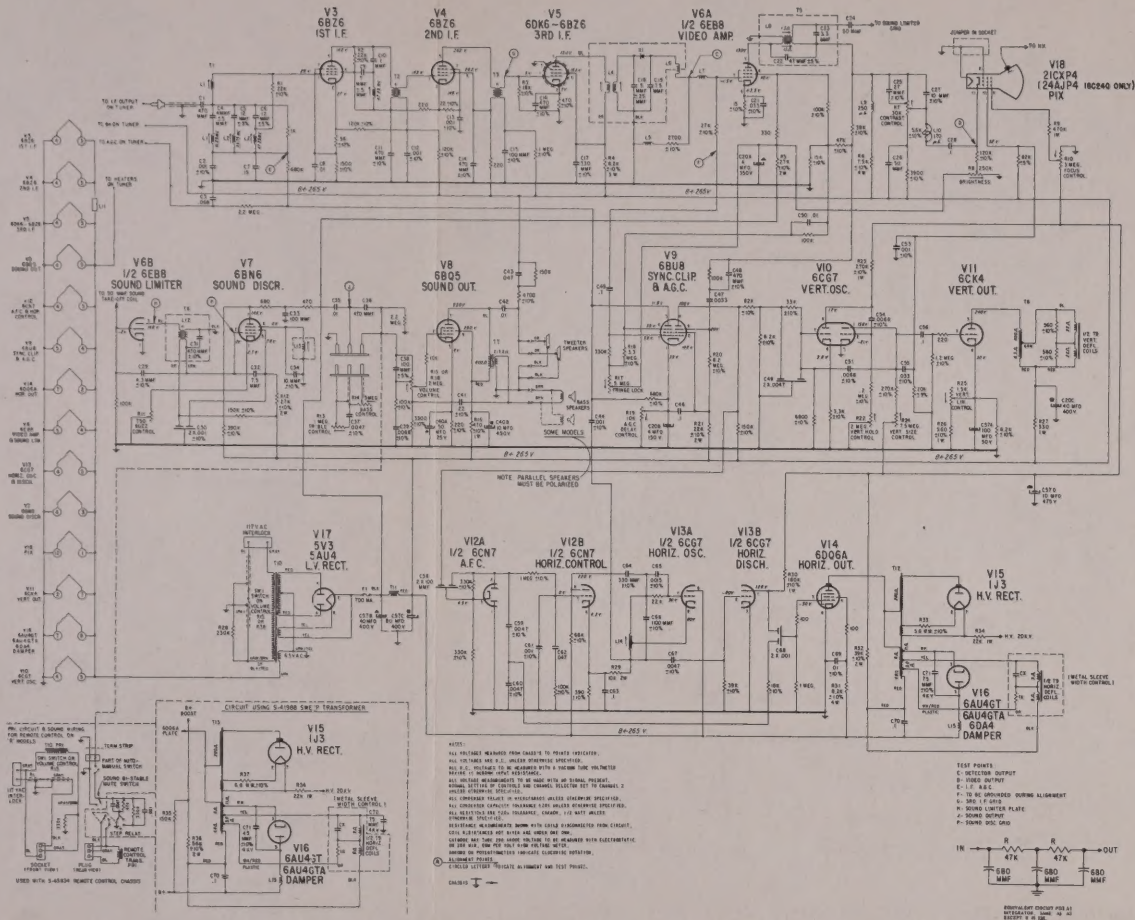
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting) .....Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)



HOFFMAN MODELS B1327, B1331, B3561, B3571, K1327, K1331, M1327, M1331, M3561, M3571, P1327, SP1331, SP3561, SP3571, W1327, W1331, W3561, W3571
(CH. 344, 344A)

Schematic Diagram Courtesy of Hoffman Electronics Corp.

ZENITH MODELS C2330E, EU, R, RU, C2358E, EU, R, RU, W, WU, C2359E, EU, W, WU, C2360M, MU, R, RU, C3010E, H, R, C3011E, W, Y, C3012H, R, C3013H, C3014H, R, C4007E, R, C4012H, R (Ch. 18C20, Q, U, 18C24Q)


V3 6BZ6 1ST I.F.
V4 6BZ6 2ND I.F.
V5 6DK6-6BZ6 3RD I.F.
V6A 1/2 6EB8 VIDEO AMP.
V18 21CXP4 (24AJP4 18C24Q ONLY) PIX
V6B 1/2 6EB8 SOUND LIMITER
V7 6BN6 SOUND DISCR.
V8 6BQ5 SOUND OUT.
V9 6BU8 SYNC.CLIP. & A.G.C.
V10 6CG7 VERT.OSC.
V11 6CK4 VERT. OUT.
V17 5V3 5AU4 L.V. RECT.
V12A 1/2 6CN7 A.F.C.
V12B 1/2 6CN7 HORIZ.CONTROL
V13A 1/2 6CG7 HORIZ. OSC.
V13B 1/2 6CG7 HORIZ. DISCH.
V14 6DQ6A HORIZ. OUT.
V15 1J3 H.V. RECT.
V16 6AU4GT 6AU4GTA 6DA4 DAMPER
V15 1J3 H.V. RECT.
V16 6AU4GT 6AU4GTA DAMPER
CIRCUIT USING S-41588 SWF 7 TRANSFORMER
NOTE: PARALLEL SPEAKERS MUST BE POLARIZED
TEST POINTS
IN
OUT
47K
680 MMF

Schematic Diagram Courtesy of Zenith Radio Corp.

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